

MARCH/APRIL 1998

# This Old House

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REPLACING A WINDOW • A REAL COOK'S KITCHEN • PRESSURE-TREATED LUMBER



# Spring Maintenance

GUIDE

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MARCH/APRIL 2008

## Spring Fix-Up

*Winter is over. Get out of the house, fix the roof, dry the yard, perfect your posing, and for heaven's sake get a new screen door.* P. 33

### FEATURES

#### An American Craftsman

*Woodworker Sam Malin makes every piece he touches with a passion that has inspired millions, made Presidents and made more than one person cry. And like every artist, he has his muse.* BY WALT HARRINGTON

#### Picking the Right Roof

*Asphalt, tile, cedar or slate—how much money do you have, and how long will you live there?* BY BRAD LEMLEY

#### What Makes a Kitchen Cook?

*For the Milton dream house kitchen, 17th-century charm surrounds a serious work space.* BY BRAD LEMLEY

#### Out on a Limb

*Bringing down a tree with a minimum of broken limbs—years—requires a professional approach.* BY CHRISTIAN JONES

#### One Fine Day

*When an army of volunteers descends to transform an elderly couple's house, it must be Christmas in April.* BY WILLIAM G. SCHWARTZ

#### Arsenic and Old Waste

*Is today's dash towarren's toxic waste dump? A report on the downside of pressure-treated wood.* BY CHUCK RAY

#### Finessing a Fence

*With a flexible design and proper installation, a fence becomes a natural feature for a New England yard.* BY DENNIS NADEAU

#### Church Estate

*Norm Alcorn and Steve Thomas help a San Francisco couple turn a synagogue into a temple of style.* BY JACK McGRATH

#### The Poster: Driveway Pavers

*Fascinating interlocking concrete stones can turn a plain driveway into a personalized welcome mat.* BY CYNTHIA JUNE

COVER: LARRY FORDEN AT MARKET PHOTOGRAPH BY KAREN A. KELLEY

86



WORKING WOOD, P. 86

94



SAVING THE WAY, P. 127

102



PLASTER, PERCE NOIR, P. 128

108



PLASTER, PERCE NOIR, P. 128

116



PLASTER, PERCE NOIR, P. 128

118



PLASTER, PERCE NOIR, P. 128

126



PLASTER, PERCE NOIR, P. 128

132



PLASTER, PERCE NOIR, P. 128

137



PLASTER, PERCE NOIR, P. 128

(Continued on page 10)

3



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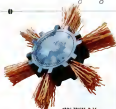


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ARMED THINGS, P. 34



**14 Brick swap**

**15 Sailing in stone**

**16 Where the gays are**

**17 Tip and drip**

**A plausible Plimsoll**

**18 Oregon trail tale**

**19 Yankee headgear**

**Funky trunks**



SAID IN A FLAIR, P. 32

**PLUS**

Contributors 14 Letters From This Old House 85 Ask Norel 120 Directory 146  
TV Listings 146 Show This Old House 174

**UP FROM**

**Off the Wall**

**Demolition Dog**

21

Meet Wilma, the love puppy. There her web site can putter on her own. Nothing could be easier. There's just one little problem: Wilma is destroying Jessica Marsh's house.  
By JENNIFER MARSH LARSEN

**Power Tool**

**Slot Machines**

31

Recent games work in mysterious ways. Who would have thought there's a sliver of horseshoe shaped like a football? Slotball could make a game stronger than slot alone can't.  
By MARK THOMAS

**Hand Test**

**The Scoop on Scrapers**

37

The push pull of pushing off power calls for scrapers with sharp interchangeable blades and handles that won't bludge the palm.  
By JOY FARROW

**Technique**

**Pane Relief**

43

When the work is done and the party's over, it's time for a new window. Tom Blair demonstrates his fingered methods.  
By CHRIS BENT

**Finance**

**What's a Tree Worth?**

51

Quite a lot, actually. But try convincing an insurance company or the IRS of that when a beloved cedar tree goes.  
By CLAY RUTLEY



**Architecture**

**Outdoor Rooms**

55

Transitions to the outdoors, porches need to breathe. Enclosing them is like stuffing a horse into a pillowcase.  
By DENNIS WEDBICK

# WELCOME TO CIVILIZATION

(YOUR DRINK IS WAITING)



PHOTOGRAPH BY JEFFREY M. HARRIS FOR CIVILIZATION

PHOTOGRAPH BY JEFFREY M. HARRIS FOR CIVILIZATION



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After a 30-year professional run for his best-seller, *The Perfect Storm* (DVF Norton & Co.), **SEBASTIAN JUNGEL**, left, now has time to chase a few more ("Out on a Limb," page 108). Jungel started doing true work, a hazardous but lucrative occupation that involves sawing off a man's unstable branches and felling an trunk, to support himself as a young writer. Despite his literary success, he has stayed with the true business to take refuge from the growing swirl of publicity around him—and to keep his perspective. "When I do true work, I don't feel like an author," he says. "I'm 80 feet high with a chain saw, and I could fall and die any minute."

It's a great equation: **BENJIE MAHDESSIAN** and **TED CATANZARO** met as students at the University of California at Los Angeles and have worked as a photographic team ever since. When *FOH* assigned them to shoot Sam Malone ("Woodwork," page 84), the married couple were surprised to see that the 82-year-old handled most



of his day's abundant workload alone. "Sam Malone's creations seemed simple—but not simple," Mahdessian says. "Obviously an enormous effort went into everything he did." Mahdessian and Catanzaro live in Santa Monica with their 3-year-old son, Sam, who took the picture of the couple at right. **BENJAMIN OLIVER** (photographs, "Driveway Paving," page 137) has long taken special notice of building materials. When Oliver, born in 1915, his parents bought a Wesleyan chapel in rural Kent, England, remodeled it and moved in.

"Conversion like that were unheard of back then," he says. "They had a lot of difficulty from the planning authorities." After moving to New York City in 1986, Oliver retired, re-floored and re-carpeted an apartment he'd rented in a converted warehouse to use as his studio as well as his home. His photographs have appeared in *GQ*, *Glenside* and *YM*. **CYNTHIA JAKE**, bottom right,



thought of her assignments to write about driveway paving stones ("Driveway Paving," page 137) as "free shopping research." The owner of a three-bedroom Colonial in Floral Park, New York, she discovered that "you need a lot of money to avoid having an asphalt driveway." After comparing more than a dozen samples of paving stones for *FOH*, Sam's grandmother she took as an assistant as her other, full-time job as a senior writer at *People*, where she worked on the 1997 Science Man Alive issue. "Paving stones are more concrete than celebrity news," she says. "It's not to be able to feel what you're working about."



## HELP

## LETTERS TO THE EDITORS

Good problem! We are glad! Go on going! We are listening. Have a happy experience with a supplier or manufacturer? Meet the reader. Contact us via E-mail at [Letters@foh.com](mailto:Letters@foh.com), or write to *Letter To The Editor* Magazine, 1115 Avenue of the Americas, New York, NY 10036.

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I was amazed, astonished and delighted to read about the

quity in the  
Finnish sur-  
vivor of this Old  
House (Mevius-  
sen/December  
1987). To a  
point, I bring  
grave news  
with numbers I  
not desire to be  
and my future pay-  
master Lindholm  
10 years of his

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or from my living  
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reg. wood products  
first shingle  
products help

On the Inside

Bringing Nore's advice on cleaning paint from brick fireplace (Ask Nore)  
November/December 1987 Candlelight is not the only answer. What Nore said is stuck in the poem can be covered with acrylic craft paint and a grafted stone. My husband noted a brick note grafted it into the poem with a self-brick brush and repaid it off the flat parts. People thought he had to be killed.

**Wanna try our Fennel?**  
Did Miss Ottomouse list a source for the poly-  
ethylene foam used to make the saved nesting  
in the Midge's "Fennel kitchen" (I mean Tucson,  
<http://June.1997>)? They would be very useful  
to me in my remodeling work.

it's hard to put a label on it. You feel protected and

100



tion has been the singular focus of C&A since 1877. Today, Cabot's competitive homeowners protect their investment

## Page 10 of 14

We're buying a farmhouse similar to the project home and Steve took on it 1986. The installed a wooden flagpole there to spruce things up. (So I cut some details on that)

installing one of the 30 to 40 police made each year by Henry's House. Wooden-plug police will put you in good company. George and Barbara Bush have one in their new house in Houston, and the former President and First Lady's neighbors in Kansas

label on what  
over time.



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On the Letters page of the November/December 1997 issue, there is a photo of Thomas F. Skaggs with a life-size cutout of Norm Aajum (an advertising display I desperately want a half dozen Norms for my woodworking shop and my brother-in-law can I obtain them? I'm sure they are not listed in the *The Old Prince* Genealogy

Even so, as *The Old House* didn't realize how fortunate Thomas R. Skaggs was to make a Noem. It seems that Delta International Machinery, an underwriter of the New Yorker Workshop show, produced a cardboard concert for its distributors to

display as proof of purchase. That was back in 1994, and neither Delta nor the T-mountain has any left. Unless your favorite hardware retailer has a retired Norm sitting secured in the basement, your best bet would be to take a picture of the real, three-dimensional Norm at one of his personal appearances—listed in the *Enthusiast* section of every *The CM House* issue.

Wang, Y. and J. Wang, 2004, *Journal of Management Science*, 28(1), 103-110.

It occurred to me that using my drywall  
knife was to cut out the face on my  
Halloween pumpkin would work quite well...  
until you finished.

**Alfred Gruel**



Sometimes it's easy

### Expanding the Local Grid

My wife and I purchased our 1920s house in St. Joseph in December 1996. Now that we have a 7-month-old, I am concerned about lead paint. It subverted some French about that perfectly fits a relaxing spending in our family room. How can we test for lead? If we find it, what should we do?

Keep your mind by having a laboratory test some paint you've clipped from the doors. Seal the chips in a labeled plastic bag, and wash your hands thoroughly after taking samples. Should the laboratory discover the presence of lead, consider rubbing the doors in an off-site facility for stripping. And third, have before stripping the doors yourself.

bulding, or scraping creates mounds of hazardous material, and mismanaged lead paint combined with a chemical stripper is doubly noxious. Whether sanding, stripping or scraping, you'll ultimately encounter a disposal problem. To find a strong laboratory or a qualified lead abatement contractor, call the Lead Listing at 800-532-3347.

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# OFF THE WALL

BY JEANNE MARIE LASKAS

## DEMOLITION DOG

Who needs chew toys when there's a house to devour?

W

hen you bring a new puppy into your house, a lot of people will tell you what to do. Dog friends will give pointers about groom-

ing, bedding, feeding and other matters of puppy parenthood.

But what about your house? Who speaks on its behalf? When you bring a new puppy into your house, your house is the one that needs the attention.

I know this because of Wilma. Wilma is 7 months old. She chews.

Wilma is half golden retriever, half yellow Lab. The perfect combination, I thought when I first saw her. But I am the most type. Alex, my husband, did not totally agree. He is, well, the poodle type, a fact I have managed to forgive. We are newbies. A few months ago, Alex brought Marley, his (comic) standard poodle, into our marriage. And I brought Betty, my 4-year-old (single) man.

And together we got Wilma. Our barking baby girl. Our love puppy.

"Wilma! no!" Alex will shout, sounding more and more like Fred Flintstone since this creature entered our lives. "Get that thing out of your mouth!" That thing, in one particular case, was the couch. Wilma had finished chewing the left-side cushion weeks earlier. This time, she had moved on to the arm.

At first we covered the couch with cotton thrown to hide the destruction.



ILLUSTRATION BY STEVE HACKMAN

It was formal, pure and simple. Wilma chewed the entire dinner. She was in her fifth stage. She chewed an entire leg and a set of drapes. She went from there to her plastic/wicker stage. She chewed the child's gate we had used to contain her in the late, dry room, then worked her way through the washing machine hoses and many sets of Tupperware. The same of the couch, which are past, became the official launch of Wilma's wood stage.

Alex said that's it. "Wilma says, 'enough,'" he said. He thought this would solve the problem.

Days experts will tell you it's all your fault. When a cat or puppy prowls your house, they offer a few alternative pointers, such as lemon apple or other catnip-tasting plants that you can spray on your possessions to discourage canine chomping. Blamey these experts defend the dog. They say puppies that chew are bored puppies. They say bad chewing habits are a puppy's plea for help. Your dog needs exercise, companionship, a better puppy life.

Look at Wilma. Look at her life. We live on a farm. She has 50 acres of fields—with no fences—no ramp in. She has a pond nearby in. She has kelp to ramble with. She has Marley to train good poodle-type motions from. She has dirt to look at in the fields. She has a barn with stinky things made to roll around in. She has an endless supply of sticks to chew.

"What more do you want, Wilma?" I say to her.

But Wilma says nothing. She is off working on a vegetable tree.

When it comes to chew toys, Wilma prefers fresh ones—mostly fresh ones. She grabs hold of a low branch, pulls. The entire branch comes off. It is about 12 feet long with many lesser branches attached. Looking proud, Wilma sits off with the branch in her mouth.

**Where is Wilma getting these things? We can only hope she is not pulling apart the neighbors' houses.**

I know where she is going. She is going to the back yard, where she will deposit the branch along with all of her other treasures. It is not a good look for a front yard. We now have garnish and downspout in our front porch. Chopped garnish and downspout, that is. We have various chewed arms and legs from various components of our porch furniture in our front yard as well as the chewed mud flap, or re-rod flap, from Alex's car. We have any number of plastic plant containers, their

contents shaken loose by Wilma's chewing jaw. And, of course, we have Wilma's rather sizable branch collection.

All in a week's work, for Wilma.

"What?—one?" Alex shouts upon seeing the august branch pile by. He has agreed with my point that keeping Wilma outside has not really helped our house. He has agreed with my assessment of the situation in its largest context. Wilma is using our house—

We have chosen. We can pack up Betty and Marley, give Wilma the house and move. Or we can give Wilma more. We look at each other, unable to utter the words. She is our love puppy. How can we just abandon her? Would we do the same thing to each other just give up on the relationship of the going-gone couple?

"Let's close up," Alex says, grabbing a garden. I take a downspout, crush it in ball.

"I guess she's in her metal stage," I say.

Alex says we better figure out where the gutter and downspout came from before the next one in. We walk around the house. We can't find any missing downspouts or gutters. It's a puzzle. We go back to the pile and examine the work. Alex picks up a sheet of metal. It appears to be all a stolen sheet.

"We don't have a stolen sheet like this," he says. Where is Wilma getting these things? It's a puzzle. We can only hope that she is not pulling apart the neighbors' houses.

I pick up a long lost garden glass. "My gravel!" I say. It's the match to a favorite pair. "Thanks, Wilma!" I say.

Alex picks up an orange cord. It goes to his electric hedge trimmer. It's been stretching for a few days.

"Hey!" he says. "Thanks, Wilma."

For a moment we feel discouraged. We say anything is it. If you can't puppy-proof your house, at least you can puppy-proof your attitude. We decide that we should stop fighting Wilma. We should embrace her. We should be thankful for all the love stuff she finds.

Just then Wilma comes running around the house, carrying an entire 4-by-8-foot sheet of larderwork that she has pulled off

the bottom of the porch.

"What?—one?" Alex and I shout in a voice, although I have no idea if I meant the apple involved in running around with some thing that big in your mouth.

Alex grabs the porch. I go to the basement and grab a lawn mower and some milk. When I get out to the porch, I see Alex has backed it to his house. Marley is at Alex's side, leaning in as if to say, "Thank you." Wilma has pulled it to a patch of the bottom of the porch, leaving the entire porch exposed. Betty is busy exploring the gravel again, a better looking in on our window. But the truth is I've never been in that gravel before. I follow Betty. It takes a moment for my eyes to adjust to the dark light.

"Hey!" I say and call Alex in. Marley follows. And Wilma. We have a cozy family gathering on that gravel space. We find things. We find Wilma's source of building supplies. We find a stack of gutters that the previous owners must have left. About 50 extra feet. We find a whole pile of extra downspouts. And for a space storm door. And paint and piles of two-by-fours. And an incredibly wonderful oak beam. Our gravel space, it turns out, contains our own private little home supply shop.

"And you know I always heard that larderwork," I say.

"Me too," Alex says.

"And that couch was ugly," I say. "Let's face it."

"The way," he says.

"Thanks, Wilma," we say.

But she is busy chewing a bag of dabbie butter. She is entering her flower stage. ■

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march / april

# extras

## Gimme a Brick

Assembled by the thousands into walls or paths, bricks rarely win notice individually. But some are quite beautiful, decorated with flowers or tiles, the occasional slab—"Don't step on the sidewalk!"—or the names of their makers. These beauties, mostly from before World War II, have recently attracted collectors, who in 1983 founded an organization to promote their hobby. But unlike other collectors, who occasionally try to raise going prices, the 400 members of the International Brick Collector Association prefer not to buy or sell. Instead, they scour old brickyards and demolition sites, then gather to swap, show and sell. Which bricks will be most sought after at this summer's show meets, beginning with a gathering in



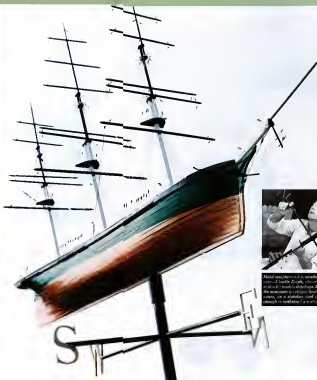
Adrienne Rasmussen holds up her friend Lou Ziegler brick.

Fort Collins, Colorado, on May 21. "Anything that's got a name on it," says collector Adrienne Jay Green, whose own collection includes an Egyptian brick from about 1300 B.C.

Many brick aficionados, like those at a recent swap meet in Miami, Fla., started out as collectors of bookends and other Americana.



PHOTO TOP RIGHT BY JEFFREY M. HARRIS FOR ENR; BOTTOM RIGHT BY GREGG DEGUIRE



## Full Sail Above

As the wind on Narragansett Bay picks up and shifts 30 degrees, the 19th-century tea clipper *Ariel* brings her bow up into the eye of the blow. On deck, sailors begin to...



No, wait—this boat is made of aluminum, not wood. And although she's a dead ringer down to the thinnest rigging line, she's only 4 feet 3 inches long, not 167 feet. Nor is she out of Point Judith. She's mounted on a sturdy pole on the roof of a house. This *Ariel* is a weather vane built by Charles Doyle of Wicksfield, Rhode Island. Doyle has spent weeks installing 52 cars on a Wineman war gallery and dabbling red paint inside every gun-port door on an HMS Vanguard. For *Ariel*, he welded together the frame and masts, screwed planks into the sides and rigged out the vessel with metal spars. "These aren't cartoon ships," he says. "They're the real thing."



Model shipmaker Charles Doyle, above and right, installed 52 cars on his weather vane. He measured the masts on a clipper boat, like all his cars, on a stainless steel pole rugged enough to withstand a hurricane.

## (extras)

### STEVE THOMAS

• March 7-8—Oxnard Supply Hardware's Blue Tequila, Thousand Oaks, Calif., 10 a.m.-4 p.m.; Irving, 10 a.m.-3 p.m.; 805.360.8422

• March 13-14—Baldwin Home and Design Center, Irvine, 10 a.m.-5 p.m.; 949.455.1400

• March 18-19—Lynn's Home Store, Georgia 9040, Concord, Calif., 10 a.m.-5 p.m.; 925.445.1111

### BRUCE HYMAN

• March 14—Bowers and Sons, 10000 Bowers Ave., Bakersfield, Calif., 10 a.m.-5 p.m.; 805.338.1111

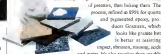
### RICHARD THOMPSON

• March 6-7—Home Depot, 10000 Bowers Ave., Bakersfield, Calif., 10 a.m.-5 p.m.; 805.338.1111

• March 13-14—Home Depot, 10000 Bowers Ave., Bakersfield, Calif., 10 a.m.-5 p.m.; 805.338.1111

## Quartz Crush

In the early 1980s, an Italian antiques restaurateur perfected a method for making marble slabs and tiles by using a vacuum press.



The process, refined in 1991 for quartz and pigmented epoxy, produces Graciosa, which looks like granite but is better at resisting impact, abrasion, staining, acids and water. It's also tougher than marble and terrazzo, although it hasn't been tested for outdoor use. As tiles or 4-by-12 slabs suitable for countertops, Graciosa comes in 20 assorted colors as well as natural whites and blues and found in any granite quarry. A hot pot won't crack it, but prolonged exposure to, say, a wood-burning stove might. That's a drawback we can live with, considering the cost: 15 percent less than that for a typical granite counter.

## The Triangle Trade

As a builder in northern New Jersey, Robert Butera used to begin every job by cutting a plywood triangle measuring 3 by 4 by 5 feet. Carpenters usually have on hand one of these triangles, using the Pythagorean theorem, every time they need to construct a right angle. Butera's triangle speeded up laying out walls and installing casework, but was too rough to slide into position easily and too bulky to store in his truck. "When the job was done, I'd throw it away." So Butera tinkered in his workshop and came up with a lightweight alternative: an anodized aluminum version that slides apart and looks like stone. When the job's done, the triangle folds in on itself to resemble a single corner cross-country ski, making it a lot easier to store than a big T-square.



## Take This Job—Please!

Cutting off history-loving general contractors: A tiny town in northeastern Oregon needs pros.

Echo, a village of 800 residents that was once a stop along the Oregon Trail, has a \$250,000 job waiting for a contractor willing to renovate its 1818 Boone Arts city hall.

The structure needs a heating, ventilation and air-conditioning system, electrical service and a refurbishing of its maple floors.

The town's fundraising committee has already created a variety of available contractors—at least those willing to tackle painstaking historic restoration. If the project doesn't begin before July, Echo may lose \$60,000 in federal grant money.



## Swank Yanks

In the 18th century, British sailors braved rough seas with flat, round, tar-and-canvas "porkpie" hats on their heads. Across the Atlantic, the hats evolved into the quintessential Yankee fisherman's headgear, the sou'wester, named for the fierce gales that raise a "smoky" spray on heavy seas. Seamen eventually tilted the porkpie's brim up in front and down in back to funnel water away from the forehead as a gutter does on a house, molded the crown to hug the head and added chin straps to keep the hat on tightly even during hurricanes.

Today's sou'westers are made of vulcanized rubber—or, in some cases, neoprene—that conceals the baby's-bottom softness of a flannel lining. These hats are no longer just for fishermen. In fact, anyone who dons one can't help but look like a good guy. Perhaps that's why the psychotic killer in the recent movie *I Know What You Did Last Summer* rarely appears without his trusty sou'wester.



## Scrap Happy

Blocks don't have to be shaped like, well, blocks. Open a bag of Karl von Oppen's hand-cut blocks, and you will see some branches, legs, stumps and planks. Originally, Von Oppen processed his raw material by intercepting Los Angeles' parks employees in the busy dawn and playing them with his homemade blocks based on sculpture for their prototypes. Now the former "corporate slave" just has his discarded from abandoned carvings given in Mexico and southern California. The scraps are sorted into stackable shapes—no two are the same—and smoothed to a hand-sanded finish. The organic blocks, once sold only at craft fairs, are available increasingly by Von Oppen's name, interested in providing jobs for disadvantaged people, whom he employs at his factory in Maracah, Mexico, there as being a secondary class. "We'll settle for being the second-best if we can sleep at night."



## Great Wainscot!

Wainscoting warms up a stark, empty wall. But the traditional beveled panels, rails and rails often lead to a stark, empty wall. Miroslav can cost \$10 per square foot, and the fancy installation just compounds the bare misery. These panels of medium-density fiberboard laminated with oak, maple, cherry or painted paper, cost only \$9 to \$18. The components are available at board panel, bead-board or flat panel styles and come pre-sanded to 180-grit smoothness, won't shrink or swell with humidity changes and can be painted or stained. One finished with polyurethane, acrylic or oil. "Anybody who can handle brush, sanding and cutting corners could put it up himself, no problem," says The Old House contractor Tom Silva, who lead his Maine-based house made to look like the paneled version. Veneer is not known for being misapplied, but the manufacturer claims that nicks and scratches can be painted and sanded away, just like they can be with solid-wood veneers.



**DRILL TEAM** These shanks, which fit any drill with a shock 'n' brace or bit, will turn a drill into a nifty detail sander, paint stripper, wood shaper, metal grinder or rust abuser.

What? Buff nylon fibers reflect with a fine abrasion result: no cracks and crevices.



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Size Kelpies clear away heavy material a smooth of plastic without melting them.



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Scale Bear used on wood, strips of sharp metal under march into small holes to make them bigger.



Brush Buff wood/bushes cover rust from metal surfaces. The brushes are too rough, however, to work on wood.



Wipe Paint shapers as abrasives—specially shaped brushes that against rust without doing much harm to the surface beneath.



# **NORM ADRIAN**

• March 27—Spring Atlanta Home Show, Georgia World Congress Center, Atlanta, 9 a.m. to 5 p.m.; 770-594-5500  
• April 14—Southern and Trade Industry Show, McCormick Place South, Chicago, open to the trade only; 800-769-1223  
• April 18—Design Idea Center, Chicago Merchandise Mart, 800-477-6278

# **TOM SKILL**

• March 5—Atlanta Home Show and Home Show, Julea 5 Knight Center, Atlanta, 800-893-9927  
• March 6—Home Show, Boca Raton Building, Hollywood, Fla.; 2, 4 and 7 p.m.; 800-381-3197  
• March 7-8—Home Show, South Jersey Expo Center, Paramus, N.J.; Saturday, 12:30, 3 and 7 p.m.; Sunday, 12:30 and 3 p.m.; 800-333-3796  
• March 14—Home Show, Hudson Civic Center, Torrington, Conn.; 9 a.m. to 5 p.m.; 413-234-4736  
• March 22-26—Old Atlanta Home & Garden Show, Virginia Beach Pavilion, Virginia Beach, Va.; 7:37-4:30-2494  
• April 4-6—Home Show, World Arena, Colorado Springs, Colo.; Saturday, 12:30 and 7 p.m.; Sunday, 12:30 and 3 p.m.; 800-333-3796



## **Scaffold and Carry**

The up-and-carry device of spring-reversing storm windows, hanging wallpaper, pulling down Christmas lights at last—comes in hot color with a 4-foot, 3-inch-high steel scaffold that with just a touch, all

aluminum platters enables workmen to extend their reach with a minimum of climbing down to insert over to the next petals. Not that using this piece of equipment is a breeze. Even with rope, buckles and brushes piled on, it wheels easily from open to open. Afterward, the scaffold can be collapsed to the size of a large portfolio and carried by its handle to the next store.

## **Roughing It**

One of the best investments to make before remodeling is buying a roll of inexpensive yellow or white translucent paper known as trace or slat. Before a single nail gets hammered, architects go through scans of the craft, drawing acids of ideas. As they try out pretenses of doors, windows, French doors and so on, they can stack the drawings on top of each other two or three at a time to visualize every possible configuration. For best results, use a light touch and a marker or soft pencil to keep from copping through a scheme is long shape.



“Human activity is no substitute for understanding.”

—H. H. Wilson

We started with a clean sheet of pavement.



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the pedestrian.



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commitment to inspired engineering and design. To  
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more horsepower but it also manages to be 10 percent  
more fuel efficient.\*\* And its four-wheel independent  
suspension has been thoroughly refined to provide even

more precise handling. What's more, combine this  
sort of advanced technology with Concordo's unique design  
and notable road presence and you have an automobile  
that's as far from pedestrian as an automobile can be.



If your eyes only knew what they were missing. Of course the road can't go on forever (an equally regrettable fact, perhaps). But, although you may stop, the thrill need not. Simply look around you. The first thing you'll notice in the

new Concorde L36 is room. You'll also notice how lavishly we appointed that room. Rich leather trim starts at your fingertips and continues down to the exceptionally comfortable seat of your pants. Instruments and controls are





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will have your  
eyes glued  
to the road.

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perature control system that automatically keeps the cabin at your preferred comfort level. To learn more, call 1-800-CHRYSLER or visit [www.chryslercars.com](http://www.chryslercars.com). To be sure, there's much more we wouldn't want to overlook.

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the great ones appeal

to a more passionate side.



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## Have a Nice Drip

This time of year, keeping feeder roots on recently transplanted trees watered requires round-the-clock garden-hose patrol. Only 5 to 18 percent of a root system gets transplanted with a tree, so remaining roots must work hard to suck up water. In two to three days, the root ball can dry out completely while the surrounding soil is perfectly moist. The solution? A cone-shaped polyethylene pouch that, zipped around a tree, allows water to seep into the root system for up to 10 hours. A single pouch holds 20 gallons, enough for a trunk 1 to 3 inches in diameter; a 6-inch-high junior version fits like a life preserver under shrubs and low-branch trees and drips for up to six hours.



Two pouches zip together and drip for up to 10 hours.

## ALL THE WRIGHT ANGLES

Wright's masterpiece of "organic architecture" near Pittsburgh, are recognizable enough, but how many folks know what the inside looks like? For those who can't visit in person, the CD-ROM *Fallingwater* provides intimate 360-degree views of each room, down to the moss-tinged undersides of those balconies. Using a technique that splices two half-eye lens photos, this interactive tour allows viewers to pan, dolly up, down and sideways, exploring such details as Wright's design for a wine

hopper on the fourth and the beach that opens to the cascades flowing

beneath the house. • *The Frank Lloyd Wright Companion*, based on William Allen Storrer's critically acclaimed 1993 book of the same name, provides an overview of Wright's career, with more than 1,000 high-resolution photos that a disk of a mouse can enlarge up to 250 percent, plus 700 floor plans, intelligently cross-referenced chronologies and lyrical, fact-filled biographies. Detailed maps lead to Wright's "sites," which in his case make for a very crowded galaxy.



## Pilgrims' Progress

Not a single Plymouth house survives from the 17th century. So in 1957, Plymouth Plantation recreated the village—and ended up with a dozen tidy cottages fit for Thanksgiving-papercraft Puritans. Archeologists and historians have since discovered, however, that the earliest settlers' houses never had shingled roofs, plastered clapboards or stone foundations, so this year's new Plymouth Plantation raised the governor's residence and an A-frame house across the street. In their place will go two new,

historically accurate structures. Starting this spring, the living-history museum's seasonal "rehabilitation" will hand-hew timbers, sink cordhose posts into the ground, raise post-and-beam frames, thatch roofs and finish walls with rough exterior clapboards and interior wattle and daub. Using 1600s-style tools kept by the museum blacksmith, builders could construct a house in six weeks but stretch out the process over several months for visitors' benefit. That's not counting the occasional delay due to late deliveries of oak logs, which arrive by 18th-century truck.



The real Pilgrims didn't have time to plaster clapboard, so Plymouth is going rustic.

## CO Shuffle

For the second time in three years, Underwriters Lab has changed its rules for carbon monoxide detectors, raising the lowest alarm threshold. Now the devices won't activate until CO levels have remained at 30 parts per million for 30 days. Intended to reduce "nuisance" alarms, the new rules are a problem for people worried about low levels of the deadly gas, which is odorless, tasteless and colorless. Even the US Consumer Product Safety Commission, which supported UL's decision, acknowledges that best practices may suffer chest pains before the alarm sounds. For the best protection, buy a detector made to the old standards (Packaging notes conformity to 1993 standards.) Or buy a detector with a digital readout, which notes—albeit vaguely—concentrations as low as 1 ppm.

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## POWER TOOL

BY MARK FRIDER

### SLOT MACHINES

Blacuit joiners make ordinary guys look good

In the hands of an experienced craftsman like Tim O'Hara contractor Tom Silva, even a basic, ugly and awkward tool can seem ordinary. And this tool he's holding, this so-called blacuit joiner, the square of steel blades that can be shoved into a piece of wood to make a seemingly useless half-

moon cut, is anything but ordinary. Zzzorp, zzzorp, zzzorp goes the tool as Tom pushes it repeatedly into the edge of a doorjamb at the Milson dream house, making those silly little slots. Tom then makes matching cuts in a piece of trim he wants to attach to the jamb. He withdraws the cuts in the jamb and the trim with yellow carpenter's glue. Then he sticks his hand into a pocket, pulls out a sliver of balsa wood about 3 inches long that looks like a tiny football cranked by a sawtooth. This is the blacuit or plane. He slips it into the glue-filled cuts and pushes everything together. Voila—a crazy-looking but effective little spline joins pieces of wood together in about the same



A blacuit joiner is made of steel blades joined in a different set line configuration, such as half-moon or crescent, or even, often, just the tool is used often and so held round together.

To always keep blacuit joiners and their cousin the carpenter's glue, use a 45-degree angle joint cut of steel, acrylic, cut into it with a blacuit plane and mounted a red plastic blade. The system uses the blacuit child of Carl Gustav, a Swiss woodworker who invented it in 1946.

PHOTOGRAPHS BY ANTHONY COSTIPAS





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## THIS IS EASY



## Marking

When Tom Skitsis has to make a shelf, marking layout has to be simple. He simply marks the board edge to edge, then draws a line across the joint where it meets to place a biscuit, every 16 in. or so. The marks on the boards show him where to make each plunge.

## Cutting

Tom sets the depth dial to the size of biscuit he's using, flips down the fence and adjusts the blade's height to about half the board's thickness. The table prevents him from tilting the blade. To cut the slot, he lowers up the fence's end and makes small cuts, then he feeds the wood. A thumb on the fence steadies the tool.



## Joining

After cutting finger marks along the length of each board, Tom flips the boards up, sets a band of computer glue down both edges and inserts it into the kerf. He slips a biscuit into each slot on one board, mates the board's edge and clamps them up. Minutes at the glue works the biscuits, making a tight mechanical bond.

the joints open up later. Biscuits can't match the strength of miter, splines or dovetails, but in assembling joints, they're stronger than glue alone. "I had to pull out a fresh-glued biscuit joint once," Tom recalls. "It wasn't fun."

Despite the confusing and automatic knobs, markings and wiring parts of a typical biscuit jointer, the tool is not difficult to operate. The user just holds the spring-loaded fence against a hard surface, turns the motor on and pushes. The carbide-tipped blade slices forward just enough to make a kerf, usually 1/16 inch deep. As the tool is pulled off the work, the fence covers the blade, protecting both it and the operator from harm.

This is a forgiving system. "You don't have to measure a leg-out," says Tom. He simply pencils a line across the joint and uses it as a target for the tool's index marks. Joints invariably fit because moving pieces can slide lengthwise about 1/4 inch without binding on the biscuit. And there's no lighting to keep glass-thick wood in place. A hand biscuit jointer holds the meeting surfaces in perfect alignment as the glue dries. "It's like having three hands," says Tom.

A biscuit jointer has few quirks. There's a slight tendency for the blade to pull to the left as it grabs the wood, but a thumb on the fence and the slip-coupling prongs, pads or buttons on the tool's base stop it always movement. Tom also makes sure the face rests flat against the work. "It's more important to keep the joint flat than worry about small differences in blade position," he says.

Once a novice gets comfortable with the tool, its applications will soon unfold. "There's always a use for a biscuit," Tom says. He outlines off the ways he uses them now: reinforcing doors and windows on misalignment, assembling exterior corner boards, joining bevel edges to edges to make a rabbet, smoothing deck railings, blind-finishing cabinet panels, piece assembling over top by fast into a cheap back board for his kids. Sometimes, he will deliberately slide the tool sideways, cutting a groove down a cabinet side. Then he'll biscuit the edge into it in kind. As he covers the cabinet top edge, the side work are his insurance that their house stays flat.

Tom says his biscuit jointer has become as essential as his constantly ringing cell phone. "I could work without it," he says, "but I wouldn't want to." And if that ever breaks? "No problem," he says. "I've got no more in the truck." ■



## USE-ON

When Tom biscuits into a board, he sets the depth dial to the size of the biscuit he's using. He flips down the fence and adjusts the blade's height to about half the board's thickness. The table prevents him from tilting the blade. To cut the slot, he lowers up the fence's end and makes small cuts, then he feeds the wood. A thumb on the fence steadies the tool.

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cover just about every other home-related topic you can imagine, including gardening and landscaping, design and decorating, crafts and hobbies and a plethora of such special topics as museums, collecting, home maintenance, food and drink, music, etc.

But since about HGTV here, let's take a deeper look at enlightened design.

One good example of enlightened thinking in building is on display at the National Association of Home Builders Research Park in Maryland. It's a showcase of homes built with new and existing technologies and energy-saving, resource-conserving ideas. Here, entire ground foundations have been cracked in and insulated by rebar, rather than poured. Some exterior walls have been constructed entirely of pre-manufactured, structural insulated panels. Others incorporate

"laminated" concrete blocks with foam insulation cores. Still other walls went up shaped by polystyrene forms into which concrete was poured. Some homes were built with steel frame studs encased in foam, in part old and broken. On several homes here (photo, next page), 4 1/2" rigid, extruded polystyrene roof slabs in that same ultra-energy case dictionary are being tested. Geothermal and other breakthrough heating and cooling systems are also in operation.

In the House of the Future recently opened in Dallas, Texas, ultimate flexibility is key. Designed by architect Barry Berke, built by Centex Homes and sponsored by Builder and Home magazines, the House of the Future features large rooms that can be made into smaller, modular spaces with walls that move at a whim. The house is checkmated with other innovations: a powered polystyrene exterior skin allowed bricolage to be completed faster faster. A fireplace was built without a chimney; it vents directly outside. The geothermal heating system is 40 percent more efficient than conventional furnaces. The house is powered with photovoltaic roof slabs.

The New House at McGill University in Montreal also features flexibility and flexibility. While entire walls of the three-story demonstration house can be moved to fit the needs and lifestyles of the various homeowners, a second-story outdoor porch can be converted to a small children's room of needed plaything and mechanical equipment is easily accessible on every floor; the ground floor is wheelchair accessible.

The idea of designing and building homes that can be built for you is way long to way into the centuries. The American Lung Association's French House (photo, below) features an HVAC system that filters out dust and pollen, and humidity levels below 50 percent. The paint, finishes and furnishings contain no harmful toxins, hazardous phos and the floor replace carpets that harbor allergens.



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In the heart of Clark's Texas house, a miniature collecting system supplies year-round water for the house but not ponds are made of recycled material. Floors are made of concrete, the walls are painted with low toxic paint, the cupboards are natural, and the whole house is passively cooled but heated by the sun.

American homebuilders look as old as well as new materials to build environmentally friendly houses. For instance, stone hole houses are becoming popular, especially in the West. Our great advantage is shown in its construction values, say experts. To equal the R factor of a stone hole house, walls of a conventional brick built house would have to be 15 inches thick and there is a factor of 33.

With higher prices going up one-third in the last 10 years, many homeowners to conventional houses are making their way to market.



Decorated natural board, less expensive and just as natural as mud as plywood is used for decking and exterior. Engineered lumber (plywood) which utilizes small strips of wood pressed and joined together into dense boards, is also becoming increasingly accepted.

material. These joints of engineered lumber are lighter, easier to use and span greater distances with less wood than dimensional lumber. And walls of engineered lumber are perfectly straight, have no rot in the wood and are good for hanging cabinets and moldings.

Advancements in concrete block and modular concrete building systems are making concrete an attractive alternative to wood. One product, ICE Block, is a 16 inch thick, poured in place polystyrene foam form that, when placed together, bond with rebar and filled with cement. It has the cumulative values of a 16 inch thick, solid brick wall. Present modular concrete blocks by Weber (foam, about 1/2 inch to 1/4 inch) are present but their standard concrete, as they cost less to transport and are much easier to move.



Steel frame houses make up less than 5 percent of all new house construction, but they are catching on. Built with cold-formed, recycled steel strips, steel frame houses are termite- and rat-proof, provide straight, crisp walls and greatly exceed wood and masonry codes. Though a little more expensive than those built with conventional lumber they are gaining popularity.

Perhaps the most interesting advancement is only based thinking about houses and construction in the recent development of whole new towns. The first of these new towns is the retirement nation.



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And there's more. We have a workshop full of remodeling and home improvement shows as well. *Paint It!*, *Remodeling & Decorating Today*, *Think On The House Doctor* and *Remodeling* give our audience the inside of the home improvement industry. *Before & After*



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Before getting inside and aggressive handle, with a flat, wooden-handled scraper and the double work of removing paint from wood. Getting the job done is a 30-second task to an extension of time to improve the painting system.

## GOOD-BYE, OLD PAINT

Scrapers take it all off

For their pleasure in the work, no renovation job gives less than scraping. It builds character, not happiness. To appreciate how hard work can fit by—like glacial epochs—try pulling paint off hand-carved woodwork covered in white lead by some Victorian vandal, followed down the decades by coats of salmon, lime, chartreuse and mauve. Afterward, for even more personal growth, strip on some knee pads and take to peeling the varnish off an oak floor.

Scrape may have an unpleasant onomatopoeic sound, but the alternatives are even uglier. Sanding by hand is too slow and dusty, power sanding erases details and leaves gouges, and chemical stripping creates a toxic goo that still requires scraping. Together, a well-honed scraper and a pure heart can lead to ecstasies of scraping perfection, those heavenly moments when each stroke peels away long strips of encrusted paint to reveal the lovely wood hidden beneath. Anyone still scraping with grandfather's handplane, however, will find this job pluperfect hell.

At 19, my first paint scraping mission was stripping the badly alligatored lead paint on an old house. (We should have worn respirators and disposable clothing, but this was back in the '60s.) My three tools were an old deck scraper with a triangular head, a brass blowtorch and the traditional navy bar, a steel hook good for beetleholes

PHOTOGRAPHS BY MICHAEL GRIM



### THE PUSH

On painted wood, push scrapers work best with a bent pin or slanted scraper if pressure is bent against the wood; the scraper's corners will slip in and leave ripped grooves on the surface.

1. The ergonomically designed rubber and plastic handle includes a grip for thumb or forefinger in push-pulling pressure. 2. A scraper's bent strip up over the blade is a pry bar. 3. Blended wedge blades remove paint from glass. 4. A plastic pry bar is designed to pry up a piece of wood without cracking it. 5. A pry bar with a bent pin or slanted scraper works best on painted wood. 6. A pry bar with a bent pin or slanted scraper works best on painted wood. 7. A pry bar with a bent pin or slanted scraper works best on painted wood.

and little else. I was blundering along, peeling some of the bigger blisters on the paint—and on my hands—and my boss took pity on me. He explained the need to keep scraper blades honed by filing them every five minutes (and position them as well as possible) and showed me how to strike the file toward the edge, not off it, which leaves a fragile edge. After that, the work area had gone from a week of scraping paint and me only five years, and my forearms bulged and rippled like Popeye's.

Then, had my boss didn't know the other secret of easy scraping: a variety of good modern tools, exceedingly sharp, some with wide blades that peel the paint off in a single pass, others designed for narrow planes, and tiny screws where the corner of a wide one would do damage.

All paint scrapers are divided into two types: push and pull. The most common push scrapers look like cleaver-like pry bars with dull blades designed to slip under and pop off loose paint. The best ones have full tang blades that go from the working edge to the handle, which can snap from fairly standard to deviously ergonomic, made of rubber, nylon or wood. Some push scrapers have built-in scoring surfaces on the back; others have screw sockets for pins to remove the paint. These work well for flooring, adhesive, putty and caulk softened with a heat gun or hot water soaked wallpaper, but they tend to slide over it (but the most thoughtfully selected surfaces can move into wood grain).

A pull scraper, on the other hand, can exert more downward thrust and sink the blade under the paint. The tool can

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## THE PULLERS

Pull scrapers are the natural choice for wood because they have smooth, more stable blades, which resist twisting pressure unlike the tough joint, a knothole handle helps both hands get into the act.

1. Interchangeable stainless steel blades have multiple profiles for molding, trim and grooves. 2. Four-edged blades reduce the number of sharpening interruptions. 3. A dove-tail joint's perpendicular blade limits its angle of attack on joint but works wonders on glue cleanup. 4. Old-fashioned pull scrapers offer a wide wooden base for raw-knotted work. 5, 6. Hand-friendly handles have a 20-degree blade angle that rips off paint without damaging wood. Both handles are fitted with blades of carbide, which keep an edge 50 times longer than stainless steel. Designed for detail work, the 1-in. triangle blade 5, resists twist in pinching out.



go into the corners of top late reveals or scrape down bowing edges with equal ease, and the blade can be modified on a sharper edge when it gets dull. Most modern pull scrapers have removable blades with two or more edges, as wide as 7 to 5 inches.

Blades held at an angle slightly toward the handle won't scrape the wood as easily as blades held perpendicular to the wood. Our favorite type has two handles and eight interchangeable stainless steel blades. They require frequent sharpening, but their concave edges can scrape out the most intricate grooves, flutes and angles from painted/molded moldings.

The latest in pull-scraping technology is tungsten-carbide, a harder-than-steel alloy that saves a lot of blade filing. The ads claim that carbide blades are two and a half times harder than the best steel, and once I believe them I used one on both natural iron and old oak, and the edge stayed perfectly keen. Of course, carbide replacement blades cost three or four times as much and require a diamond-molded honing stone or touch up their edges. But in scraping, many repeat is most used.

When shopping for scrapers, trim your list to the minimum. The manufacturer has shaped the handle scientifically to reduce fatigue and maximize control—scraped surfaces are like to call it—the tool will feel like an extension of your arm. Labels such as "contractor's grade" and "professional quality" sound nice, but "full warranty" is more meaningful. Personally, I was moved by one company's simple but "guaranteed forever." As I recall, that's how long my first scraping job seemed to last. ■

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## TECHNIQUE

### PANE RELIEF

The fail-safe way to install a window

The old white-pine window with its hand-planed muntins and peg-jointed sash had withstood the onslaught of snow, rain, ice and wind for about 370 years. By the time This Old House contractor Tom Silva found it in the upstairs back bedroom of the Milken dream house, it looked its age, the victim of centuries splashing back from a porch roof. "The sash didn't work, the side joints were rotted 6 inches up and you could stick your finger right through the sill," says Tom. "The cost of repairing this window would have been more than it was worth. It was just totally gone." In short, the time had come to replace it with a new one.

When functioning properly, a window lets in the best of the outdoors in the form of light and fresh air. When a window fails, it lets in too much of the outdoors—not just cold winter drafts but also water; a house's exterior energy moisture seeping in from the outside or condensing on cold surfaces made can deteriorate a window's frame and, if unchecked, will destroy the structural integrity of a wall. In

Before Tom Silva's sash was cut into 10-ft. replacement sections, he fastens waterproof spacers around the opening, over the building paper. At the bottom of the window, he taps the spacers over the flashing to make sure they don't come loose from the wall. The spacers at the top of the opening just sit on top of the trim. The trim pieces on the sides, then, essentially trap moisture with wood or metal flashing but, because the waterproofing is kept under control, no flashing is needed.



PHOTOGRAPH BY KELLER & KELLER

these cases, a new window becomes a priority. "You can replace the sash alone," says Tom, but he recommends taking that course only if frames and sills are still square and in good condition. "If you find any rot, the entire window unit should be removed and replaced."

At The CM House's fall project in Milton, Massachusetts, Tom saved the one only Georgian windows in the home by "keeping the feel of the house," he says. Each one was liberally attacked with epoxy and then weather stripped. In the rear of the house, however, the few remaining original windows had become lost in a hodgepodge of rickety additions, so replacing them with new, energy-efficient ones made sense.

Once he had removed the sash and rosette on the old window frame, Tom suspected the studs and found them sound. (If they had not been, he would have replaced them too.) He measured the rough opening, from stud to stud and header to rough sill, and placed his order. When the windows arrived four weeks later with weather-stripped pre-painted sash mounted in the panes, they were ready to pop in.

Well, almost. First, like any good window installer, Tom had to detail the opening to keep water out, keep heat in and make sure the unit looked as best it could and out.

When Tom installs a new window, his foremost goal is to make its perimeter watertight so a seal won't have to be applied again. "I can't tell you how many times I've seen windows in relatively new houses completely sealed out," he says. To prevent that, he peels off the old siding, protects the exposed sheathing with asphalt-impregnated kraft paper and staples a waterguard, 8-inch wide spline of fiberglass-reinforced polyethylene around the window opening. "It's the single most important step in the process," he says, because it keeps water from finding its way past the sheathing and onto the framework. House wrap alone won't do. "That's an air-infiltration barrier and does nothing to stop water," says Tom.

After nailing the spline, Tom did the window, header-side first, into its opening. Once he centered the unit, he nailed

## ON THE OUTSIDE...



Wooden window casings longer with one machine-splined end of oil-based primer on the back of the casing. It may be overkill, says Tom, but priming protects the wood from moisture eating the house or seeping around the edge of the casing during a rainstorm. The exterior of the casing and sash was primed at the factory.



You can't find new windows with sills as thick as the old ones, so he orders all casings first to specify construction difference between sill and extension. Then he clamps them together with screws before caulking any remaining gaps. After bevel-sanding and priming, the glued-up sill clearly match the one-piece originals.



Tom's level shows the top of the window is slightly higher on the right, a problem he can correct either by taking it out and shimming a bit off the lower end of the right jamb or by shimming up the left jamb. Before he fastens the window to the wall, he slides both sash open and shut as a final check that everything is OK.



Tom affixes the window to the framing permanently with 20-in. stainless-steel screws placed 12-16 in. apart. (He screws through the sill, though.) "You want to make sure they're going into the structure of the wall, not just the sheathing," he says. Afterward, he'll either patch over the holes or leave them flush and paint the finish.



Before he made the casing in place, Tom gave caulk between the window casing and the spline, creating one more barrier against leaks. Then he squarified the ends of the sash boards into the pane and made them flush. Also laid on this step, from aluminum tape, the sash should last years longer than its unvarnished life span.

## ON THE INSIDE...



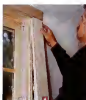
In either house with uneven walls, Tom often makes push extensions to bring the jamb flush with the wall or even a bit proud of it. To find the right extension size, he bolts a board against the wall and looks for the widest gap between it and the jamb's edge—5/16 in. in this case. Then he gets a strip of wood to the same thickness.



Tom attaches the 5/16-in. push extensions to the sash and sash boards with glue and bolts. Because the sash and window join to the jambs, these extensions provide him a flat place on which to work. "I won't have to hold irregular walls," he says. He'll deal later with any of the gaps that crop up between the trim and wall.



The steel, a piece of poplar 1 in. by 3/4 in., is long enough to project 5 in. beyond the edge of the side casing. With a series of screws and nuts, Tom fits the steel within a "hour's width" of the wall, then he glues and nails it to the sill or 4-in. square. (Using a combination square against the frame keeps the steel level as he nails.



Once the steel is in place, Tom treats the rest of the window with poplar, nailing it tight to the jambs. The four-riding pieces him to install the head casing before he can nailing the subpanels in the head trim. (It's easier to trim the head last.) He then secures the lower end of each side casing with a screw through the steel.

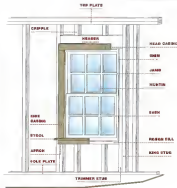


At the end of the job, Tom made the open boards the steel. He sands the newly installed trim to remove mill marks. It all fits perfectly—except for the double gaps between the side casings and the window work. "I could put fill over the walls," he says. Instead, he carefully scuffs the steps of poplar and glass them in place.

it in place through the casing with a 102-galvanized nail. Then he plumbled, leveled and checked its squareness by measuring both diagonals, just to make sure it hadn't ruckled during the installation. Tom's last task as the outside went to cover the window to the framing and using the siding against the casing. Next he moved inside to apply the trim and casework.

He started by skimming the gap between the window jamb and the framing, then he installed an Overlaid that gap can allow compression to form inside the wall and work as much better as rainwater. Loose-packed fiberglass needs a vapor barrier, so Tom installed and strips vapor in one step with covered polycarbonate foam, a product he chooses and applies with care. "You don't want triple-expanding foam in a 1/2-inch space," he says. It can bow the joints and make a window impossible to open. Even with the maximally expanding variety, which won't set in volume only by half, less is better. "If you use it and don't think you've got enough, you're got enough," says Tom.

The last step of the window installation was to cover the exposed joints and the rough plaster edges with wood trim. Tom mimicked the opening with a plain band of poplar with a single round head, just the simple detail the Milnes house demands. As he stood back to assess his handiwork of the last three hours, the swaying branches of a century-old hawthorn dappled the light shining through. "That first window lent a couple hundred years," he says. "Let's hope this one lasts even longer." ■



#### How to Order a Window

When Tom Allen wants new windows in remodeled old houses, he tries to find ones that fit with the old. "You want to take all the steps to make sure they look original," says Tom. All the Milnes dream house, for example, the old windows each had a pair of each, single-hung (only the lower one slid up and down), and each each had six panes of glass. When Tom placed his order, he asked for what he knew in the trade as double-hung (two sliding sashes over others). For energy efficiency, he specified that each each have one pane of insulated glass and, for appearance's sake, he requested applied wooden muntins, inside and out, with metal spacers between the glass panes. "It approximated the look of the oldest windows," says Tom.

His window order also included the width and height of the rough opening (the hole formed by the house, rough sill and studs). These cannot be estimated. "Quite often, I've seen home owners try to guess the size of the rough opening based on where they think the sill plate is, rather than taking off the trim to find out exactly," says Todd Dejen of the architectural division of Ramon Windows. "And if you guess wrong, you end up with a window shorter than the one you're replacing." By industry custom, the width always comes before the height. Properly sized, a new window won't have to be expanded into the rough opening. Dejen says there should be 1/2 inch of space on the top and sides for proper chinking and insulation. The window should rest directly on the rough sill.

Finally, Tom made sure the replacement windows arrived at the site complete with fully primed exterior trim 3 inches wide to match the originals. He could also have ordered the windows with an exterior rolling sump and attached his own trim. "That's useful if you want more elaborate trim," he says. "In that case, you have to make it yourself."



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F I N A N C E S

BY GARY DELSKY



## WHAT'S A TREE WORTH?

Take a loving look at them now

A

book to curl up with by the fireplace, the eighth edition of the *Guide for Plant Appraisal* hardly makes for scintillating reading. Its 103 pages are crisscrossed with chapters

such as "Trunk Formula Method" and "Cost of Repair/Cost of Cure," as well as calculations for dealing with "cylindrical cross sections" and determining the "diameter of the canopy strap." Yet dense as it is, the guide explains something important: Those trees out in the yard are likely worth a great deal. That may not mean much now, but it could translate into dollars—down home owner's insurance and the Internal Revenue Service—if a prized oak suddenly dies. "For most people, trees are about shade or beauty, not money," says Steve Day, president of the American Society of Consulting Arborists. "It's only when they have to replace one that they think about what it's worth." Yet while the guide's equations could put a mature tree's value at thousands of dollars, a typical insurance policy won't

ILLUSTRATION BY HUNGRY BOO STUDIO

cover nearly as much, and the Internal Revenue Service isn't likely to give anyone a break, full value tree worth it.

Most insurance policies cap the amount that home owners can receive for damaged or destroyed vegetation at \$500 per tree or shrub and, in the case of multiple losses, a maximum of 5 percent of the home's insured value. This coverage extends only to losses caused by sudden and unexpected events such as fire, lightning, vandalism or riot, not erosion, disease, hurricanes, hail or other gradual problems. A home owner's policy can also include the cost of removing a tree, which can be hundreds or even thousands of dollars, but only if it hit the house, garage or another of the insured structures on the way down. Some insurers, including Chubb and Travelers Property Casualty, will raise the per-tree limit to \$1,000. A few others, such as Royal Indemnity in Charlotte, North Carolina, offer policies that allow a claim for up to 5 percent of the total policy value, which typically exceeds the insured value of just the house. Upgrades like these can add as much as 25 percent of the base insurance premium.

But there's all the insurance industry will do for a dead tree. If a property had, for instance, a fairly mature Japanese red maple that would cost \$3,000 to replace, the owner would have to pay any costs that might come along down the line, the insurer's liability policy might cover the costs cost. Beyond that, there's virtually no way for a residential property owner to buy extra landscaping coverage. Calls to most of the major property insurers in the United States turned up none that would underwrite additional coverage. Even the renowned Lloyd's of London, the epicenter of a reputation for insuring almost anything, would

#### Appraise Before the Storm

**The Council of Tree and Landscape Appraisers** recommends that home owners have their trees and shrubs appraised before an accident happens. That, the council suggests, will not only make the insurance job easier, but also save home owners money. A residential landscape appraisal costs roughly \$200, assuming a cost of \$100 to \$50 per tree or group of shrubs, of which the average property has 40 to 60, says James Ingram of the American Society of Dendrology Arborists. The IRS could run to \$1,000 or more if an appraiser has to establish values after the fact. "It's a lot easier to appraise a tree before it's damaged," says Richard Horvath, chairman of the Council of Tree and Landscape Appraisers. Getting an appraisal in advance makes the most sense for properties with rare specimens or trees and shrubs that perform a vital function—like a shade of evergreens between the house and a busy thoroughfare. An early appraisal is also wise for those who live in an area prone to lightning, tornadoes or other of nature's perils.

nonreplaceable loss. Like insurers, the IRS allows a claim only for losses caused by sudden and unexpected events, although Uncle Sam also counts floods, hurricanes, invasions and the like. As a rule, casualty losses must be deducted on the tax return for the year in which the damage took place. A loss that occurs in a federally declared disaster area can be deducted on an amended tax return for the prior year. That way, a disaster victim in need of cash may be able to get a refund on taxes already paid.

The rub is that the IRS and the insurance industry have different standards for determining the value of trees and shrubs. Insurers generally accept the results of qualified tree appraisers, most of whom belong to one of seven industry groups (see Directory). A few years ago, these groups banded together to form the Council of Tree and Landscape Appraisers, which put new and traditional valuation methods into its *Guide for Plant Appraisal*. One method appraisers commonly use considers size, rarity, condition and even location in the belief that a tree placed to show off its beauty or block out an eyesore is worth more than one standing in a backyard corner. The guide, for example, values a healthy, well-maintained arbutus and oak with a 35-inch trunk at \$10,100. "Individual appraisers might differ in their opinions of condition and location," says Richard Merritt, chairman of the Council of Tree and Landscape Appraisers, "but appraised values in the five figures aren't unusual."

Appraisers also use the replacement-cost or cost-of-cure method of valuation, particularly when a property owner can't replace a tree with one of a similar size. "It's often impossible to replace a fully mature tree," says Merritt. For example, the largest readily available replacement for that 35-inch oak might have a 4-inch trunk and cost about \$1,000.

Yet no matter which method an appraiser uses, there's no good a choice as to whether the IRS will back the deduction. In an orchard of cases, the IRS has not accepted the Council of Tree and Landscape Appraisers' formulas, instead, the appraisers tend to have deductions to the difference between the fair market value of the property

before and after the loss. Owners can use a landscape appraisal as a means of making their case but, says Tom Debuschewitz, a partner in the Washington, D.C., office of Gould Thorne, an accounting firm, "You may have to consult with a real estate agent or appraiser to prove that the property has dropped in value as a result of the casualty loss." The loss in market value is not exceed the adjusted basis—the purchase price plus the planting costs—for the tree or shrub in question. That's way enough to figure for those who bought and planted the tree as their property themselves, but for most difficult if the tree was already there. It may be a good idea to have the landscaping appraised and to make a photographic record of all shrubs and trees to verify their existence and their condition before you file a claim. Whatever the value, a tree isn't worth the hassle of an IRS audit. ■

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Depending on the level of weather protection built into an outdoor room, you can use it several months a year, six months a year, nine months a year or even year-round. If you choose minimal protection—only a roof with columns holding it up—you can stand outside the house as a garden, absorbing nature. But if conditions worsen and a storm




A four-square farmhouse located in Sullivan County, New York, was gutted, renovated and returned to its original exterior appearance—except that the depth of the structure's unpartitioned porch was doubled. A four-season rubber room was added to the rear with a fireplace as well as a seating fire.

PHOTOGRAPHS BY GUY KLOPFENBERG

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develops, you'll get wet. If it hasn't snowed though and the air turns cold, you'll get cold. These experiences don't gradually frost what someone inside the house feels. And different experiences make good residential architecture. The more consciousness you feel as the same piece of property, the more likely you are to appreciate it.

To figure out what sort of experience you want from an outdoor room, start with the basic form—a roof, a ceiling under it made of bent boards, columns or piers that hold up the roof and define the vertical surfaces on three sides of the room (the fourth side will be the siding of the house), and a solid floor.

Next, add to the room as you want. Add screens to the walls to extend the number of months the room is usable. Add a door that leads outside from the screened-in room. Next, consider big windows that open fully. To create a year-round room, add trees

will further crumble that of a finished room. Because an outdoor room that isn't bug-proofed or glassed offers more architectural interest to the house, the best way to have your luxury and still escape mosquitoes and cold is to install easily removable screens and windows that can be popped in and out when needed.

When it comes time to decide where to build the outdoor room, give it some serious thought—don't succumb to post impulses. And don't assume the addition should be tucked onto the side or the back of the house. If your property faces the street and lots of people walk by every day, you might find it pleasant to add to the front of the house. The key to making any nonobvious location of the room work well is careful consideration of the architecture incorporated in the rest of the house. An outdoor room will change the look of a house significantly, which can be a plus



Architect Deane Wolfish designed a screened-in outdoor room for the shady side of this tiny house in Columbia County, New York. The floor and ceiling are traditional American porch-painted Douglas fir; yellow and bent board above. At 11 feet square, it is by far the largest room in the house.

lenses, heating and weatherproofing. But before you actually begin any construction, stop and think about what the result will be. All the different options for enclosing an outdoor room have value, but the original appeal of the room was to be close to nature. The more the room is protected from the elements, the less out-of-door the experience will seem. With most of these rooms, less is more. An open gazebo-like room is better than a screened-in room, which is better than a glassed-in room. The experience should have duality—being inside but feeling as if you are outside.

How much you add to the basic outdoor room will also dramatically affect the appearance of the rest of the house. An open room with just columns for side walls will throw off striking contrasts between deep shadows casted by sunlight falling around the thin columns building up the roof.

Screens will give the feeling that you have added to the bulk of the house, and they will cut down shadow details. Less sunlight will penetrate along the floor of the porch, instead, it will tend to be evened as rays even seem to stop altogether at the screen. And the screens themselves are likely to add to the illusion that tall walls have been built. Throw in some glazing, and the look

If you have a symmetrical house, for example, you can use the room to amplify the symmetry. On the other hand, adding an outdoor room to the corner of the house—or making it round when the rest of the house is very angular—can change a symmetrical house into an asymmetrical one.

The addition of an outdoor room changes perspectives from inside the house too. If you add a screened-in porch off a living room, the new room will block some light. But the room-beyond-the-room effect can make both the new outdoor room and the living room look bigger from either location, especially if the floors of both rooms are kept on the same level. Get the eye the maximum amount of space to follow the floor line into the new room—over Fenchel's door, an even more, will help.

Outdoor rooms are rooming spaces that deserve the thought of an attentive lover. They are as close as you can get to standing outside under a tree. The columns anchor the space like a tree trunk, the roof is a canopy as expansive as branches chock-full of leaves, and the floor beneath spreads out before you like the earth. This is a fine effect with Mother Nature: experiencing the joy of the world around you without actually going outside. ■

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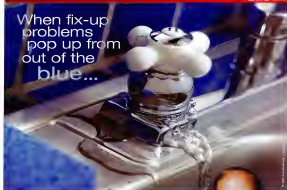
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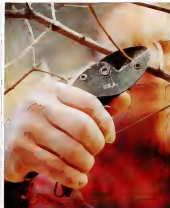


## 69 FIXING ROT

Epoxy  
restores  
punky  
wood



Illustration: © J. M. Smith



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cuts make  
shrubs  
healthier



## 77 SWITCHING DOORS

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# SWAMP FIX



## FIGHT FLOODS BY DRAINING RAIN

wet or blackedged lakes, he says. Saturated ground also breeds unsightly molds and fungi and, where water collects in shallow pools, mosquitoes.

Yet despite the damage poor drainage can do, fixing it doesn't rank high among home owners' landscaping priorities. "Humans are incredibly adaptable," says Tim Dantoni, president of the American Society of Landscape Architects. "A lot of people just ignore the water. They simply give up that part of their yard." Contractors say that clients are often reluctant to sink money into something they can't see. Just without better drainage, there will be little to admire in that backyard, which has kept Ramirez busy off and on for the past two years.

To change the course of all that water, Ramirez has brought in a small squadron of earthworkers—an excavator, backhoe, bulldozer, steel loader and dump truck—160 yards of gravel, hundreds of feet of 4-inch perforated pipe and a blueprint of the new drainage system. It was developed by Charles J. Stick, a landscape architect based in Charlottesville, Virginia, who had already designed the paradise front yard, dotting it with trees and shrubs indigenous to the region. His plan for the backyard includes patios, gateways, planting beds and dozens of trees, some of which can go in until the ground gets a lot drier.

Stick's drainage system consists of subsurface water monitors, called French drains, some cut across the top, middle and base of the slope while others wrap around those fancy patios and beds and an in-ground swimming pool that already bogs and poisons. Each drain begins in a 3-foot-deep trench that gets lined with fiberglass landscaping fabric to keep it all dirt that could ultimately clog the drainage. After dumping in about 4 inches of gravel, Ramirez

GROUP: The inside is the last spends just of the problem, a slope that made even mowing and mowing toward the house, where it sat only flimsy flimsy grass; but the yard into the basement. (CARTER: A trench placement for 2 ft. was dug down to 2 ft. when a 2 ft. was allowed to settle to be a more than originally thought. Then, a concrete structure the base to steady it for the layer of gravel underneath the drainage will be.



DOMINICK RUTKASZAKS THE GROUND WITH A BORDEN-POINT shovel, puts his foot on it and steps up with all of his 190 pounds. The shovel barely breaks the surface, as blade no mud for the dense, glazed and prevalent in northeastern New Jersey borders being rough to dig in, but like that doesn't sink up much water instead of percolating into the ground, runways they grow and lands downhill, in this case straight for the house.

When it gets there, says Ramirez, an excavation and landscape contractor based in nearby Hackensack, the basement turns into a reflecting pool. In heavy downpours, so much water speeds down the slope that little waves slap against the house, leaving muddy marks on the pale yellow stucco and running the yard into a swamp. "There is constant ponding on the lawn," he says. "Hardly anything grows at all."

A lawn that squishes underfoot "pulls down for plants," says Ted Griggs, president of the Associated Landscape Contractors of America. "When zones get saturated, they lose oxygen, and plants suffocate." Signs of trouble include stunted growth and



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# ROT PATROL

FIXING THE POTHoles  
IN WOOD

THE WAND-SHAPED GRINDER BITES deep into a stile or the bottom of the garage door. Prowling like a IDS in denim, John Stahl grammers slightly as the tool chews through pusky wood with a stinging whine. After a couple of minutes, he steps back and the inspire and surrey the cavity he has made. "You'd think your dentist was out if he didn't get out all the decay, right?" he says. "It's the same with rot. I don't stop until I get down to good wood. I know when I let it by the sound of the cutter. It changes to a high whine."

John Stahl's business is to repair rot, but he strongly advocates stopping it before it starts. "You'll get me whenever wood never completely dries out," he says, tying the garage door. "First of all, it's north-facing and never sees any sun. And even though there's a wide roof overhang, there's no gutter, and water splashes back onto the bottom of the door and keeps it damp."

The rotless, voracious fungi that feast on wood thrive in such moist conditions. The cellulose in wood's structure and structure provides the food and, when a fungus digests it, even the thickest beams lose all of its strength. You can push a finger into it.

Windowsills with cracked paint and open joints, the end grain of an exposed rafter, leaky shower stalls, poorly caulked tubs and dripping radiators. These are all places where fungi, aided by oxygen and warm air, routinely take hold and the immense, expensive damage



"There's an old saying about the best ways to prevent rot," says Steve Quasler, a researcher at the University of California's Forest Products Laboratory. "Keep wood dry, don't get wood wet and keep water away from wood."

When he looks for rot, Stahl picks at wood with an awl or pickaxe. The damage may be just beneath an apparently normal surface, and is revealed only by the tool's easy penetration. He also checks suspect areas with a moisture meter. A reading higher than 18 percent is a clear signal the wood is rotting.

When he finds what he's looking for, Stahl aims to fix the problem without destroying the detail. "In an older house, the wood is almost always better than anything you can buy or replace it. When people say to me, 'Why are you going to do this trouble? Just rip it out?' I tell them, 'It's like driving a Rolls-Royce with a bad gear job and bald tires. Why trade it in for a Yugo?'"

Specimen who regularly use rot repair pads vary differ on which technique works best and how the longer. One camp believes in removing the damaged wood's strength by infusing it with



A. Good paint often hides bad wood, and the only way to find rot is to pry the surface apart with an awl or awl. B. Noting holes a 24,000-psi grinder for speed in clearing out rot, but a smaller tool for the grinder or a router will also work. C. Remove rot and replace exposed hole holes drilled in the cavity help keep air from entering back. See the following page for the next steps.

BY PETER JENSEN PHOTOGRAPHS BY KOLIN SMITH

a thin liquid epoxy called a consolidator. There's no dust or work, so removing the patchy wood. Sehl, however, doubts the durability of that approach and trades out of the other camp. Because the soft stuff, add some bone and use a thick epoxy paste to fill the cavity.

After getting the rest out of the hole, Sehl drills 1/4-inch holes in the solid wood and fills them with borax gel and yellow. The fluid side of red repair, but the compound helps prevent damage if the wood gets moist again. "It's like an insurance policy," he says. "Moisture makes the borax flow into the wood and fill gaps."



6. After the cavity is coated with a thin epoxy primer, it's filled with a much thicker mix of resin and hardener spread from a spreader then fully smoothed out. 6. The epoxy can be shaped and smoothed for 20 to 45 minutes, depending on the air temperature. After curing for a day or two, the patch is ready for sanding and painting.

Sehl can brush the excavated area with a low-viscosity epoxy to strengthen the bond between the good wood and the patching compound. Then he pulls out the epoxy equivalent of a double-barreled gun. It carries caulk tubes out of the room and he does that makes up the two-part epoxy he uses. When he squirts the trigger, they surge on their way through a 6-inch mixing tip and flow into the cavity. On a cool day like this, Sehl has about an hour to sculpt the epoxy. "I've used this method to re-create a redwood gutter on a San Francisco Victorian," he says. "It has excellent modeling characteristics." Sehl, a hawkeye craftsman, pulls his patchy bark over the flat face and leveled edges of his laser plane creation, marrying it perfectly with the wood. The epoxy, in place a full 15

inches deep, clings to the vertical surface and covers gaps.

After 15 years in the restoration business, Sehl has worked with dozens of epoxies. Some patching compounds slump or run slightly before they start to harden and need constant working. Some require a wooden form band with plastic to keep the epoxy in place while it sets. When he needs to form a long, straight edge and a flat surface, Sehl sometimes uses a strip of Plexiglas, which doesn't bond with epoxy. More often, he does it freehand.

He has also seen repairs fail because so epoxy doesn't keep up with the wood's expansion and contraction, so the bond between them breaks. Other approaches take two long to set up in low temperatures or thicken only with the addition of super-light fillers called micro-balloons. "By mixing them into two-part epoxy while handling in a scaffold three inches off the ground in a light breeze," says Sehl.

Moisture can also limit a repair failure if the wood gets wet enough to swell and break its seal with the epoxy. Once not in moisture, however, the surrounding wood quickly returns to a relatively dry state (10 to 12 percent moisture content). In high humidity conditions that keep wood damp (say, July in New Orleans), Sehl might use a heat gun to speed the drying.

The wood should also be kept relatively dry after the repair, but that doesn't mean creating a hermetic seal, says Barry Goodell, wood science and technology professor at the University of Maine's Forest

Products Laboratory. "Placing an epoxy wrap around moist wood or leaving the wood gap wet again can create a petri plate environment that's perfect for the growth of fungi," he says.

Sehl's epoxy will take just one day to cure enough to allow a few passes with a belt sander to take all its glossy glaze sheen and make it dead level with the adjacent wood. A couple of coats of paint will provide the necessary protection from ultraviolet rays and make the patch almost invisible.

Sehl steps back to admire his work. It took a little more than an hour to make damage that was more than 30 years in the making. "Only a fungus would know that isn't real wood," he says with a chuckle. ■



7. A wetting consolidator so an unobtrusive epoxy spread along the cracks, never seeping anywhere and eventually becoming a more stiff around a minor area. 7. Not jump and avoid a strong and weight, leaving nothing but a fluffy pulp. 8. The glass can be left enough good used to several repair instead of a total full replacement. 8. After sanding the cracks with tape, without then spreading John Sehl finished on and smoothed the epoxy. To use expansion resin, he embedded small wood blocks in it

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# WHACK ATTACK



BEFORE AND AFTER

## PRUNE IT OR LOSE IT

equally problematic. "Never remove more than 25 percent of the live wood," says Ryan, "because, along with the branches, you're also removing leaves, the plant's food factories."

The art of balanced tree pruning begins with developing strong scaffold branches, the main limbs that extend from the trunk. "Look at the branches of a young tree," says Ryan. "The ones you want to keep are attached to the trunk at a wide angle, the way your thumb is attached to your hand. The ones to prune are those which impinge at sharp V-shaped crotches." The right angle creates a weak spot at the crotch, limiting the growth of a branch and making it more likely to be torn off under stress.

Branches that intersect are troublemakers too. "The danger occurs when crossed branches rub against one another and cause an irregular wound," warns gardening expert and author Robert Kneitz in his book *Pruning*. "There is a chance that the open lesion can be an entry point for pests and diseases." The simple remedy: removing the weaker branch as soon as a weak spot appears, if not before.

Sometimes a tree has two trunks, so-called leaders, each young

**ALERT ALERT:** To give the limbs a better shape and improve its flowering potential, landscape architect Rick Janney advises to brighten and cut out weak leaders and dead branches. He also opens up the inside to more light by selectively removing the inner branches. **ALERT ALERT:** The same idea has several branches that cross and rubbed against one another, sometimes creating open wounds. In each case, Janney logs off the branch that is weaker or growing toward the center of the shrub.

with two in a juniper. "Your hands are always up! Before heading a path to the living room, he does for a quiet moment under the trunk of a young tree. "Sure skyward. Imagine a beach umbrella. "You should be able to see through the branches but still have an umbrella-like canopy," says Dennis Ryan, a professor of arboriculture and urban forestry at the University of Massachusetts.

Windbreak is the key to growing trees and shrubs effectively. "Use your artistic eye," says Ryan. "Try to visualize the tree 10 or 15 years down the road. Will the branches crowd each other out when they're largest?" Like the ribs of an umbrella, strong and unconfined branches can support a full leafy canopy and improve a tree's ability to make photosynthesis. Pruning shrubs requires a similar logic of encouragement, most varieties of shrubs develop dense canopies that should be opened to more light. "As with trees, the idea is to encourage the strong branches. Work from the inside out the outside."

Ultimately, the pruner tries to promote healthy growth patterns. "If you don't prune, Mother Nature will," says Ryan. Following weak branches to survive winter breaking and tearing, especially during high winds and heavy snows. Not trimming too much can be



### Prime Time for Pruning

The ideal season for pruning varies according to the plant. Evergreen shrubs such as yew and juniper should be pruned at the first leaf of spring. Deciduous, for shrubs vulnerable to frost, such as rhododendrons and azaleas, timing expert Dennis Ryan recommends pruning cut shrubs—colored branches that won't support new growth—after the snow melts and the ground has started to thaw. "This will ensure that water will be available on the shrubs for new growth." Live branches of spring-flowering trees and shrubs should be pruned right after flowering. "Grapevines, flowering cherry, and apple, rhododendrons, azaleas and forsythia are ideally pruned immediately after their flowers have withered and dropped off," says Ryan. "Prune too early, and you cut off this year's buds; cut too late, and you'll remove the following year's buds."





#### Shower Gear

1. A lightweight line saw, used with much caution for both green and dormant cut, is fine as it is a considerable saving time. 2. In a new cut on the stem/trunk of a tree and/or branch, the saw should be used to make the cut, which should be made at a 45° to 60° to 75° angle. 3. Most cuts should be made on the side of the stem/trunk, not on the top or bottom. 4. Use a sharp, clean cut. 5. Use a sharp, clean cut. 6. Use a sharp, clean cut.

for premonition. With some species, neither will ever have enough strength, and the canopy should be ended by removing one of the leaders when the tree is very young.

Lopping will the upper portion of the trunk of a mature tree can be disastrous. Known as topping, this crude approach is usually a last-ditch means of shortening a tree that has grown so tall that it blocks a cherished view or interferes with utility wires. A topped tree sprouts out along its upper section as a flat, wide growth pattern and, says Kneib, will likely "die much sooner due to rot

and disease entering the exposed leaders, limbs and branches." The best way to avoid the eventual need for topping is to thin lateral branches selectively before the tree grows too tall.

As with trees, the art of pruning shrubs depends on formality. "The first rule with shrubs is to make sure they're planted in the right place so they won't present a problem as they grow tall," says Ripen. "If you have to lower a shrub, cut the main stems down to lateral branches at the desired height." Called deep-crotch pruning, this technique changes the shape of a shrub by directing new growth outward rather than upward. By contrast, when unneeded growth is the problem—the shrub presses against the house or crowds other shrubs—trim the laterals.

When branches grow longer on one side of a shrub than on the other, usually because of uneven exposure to sunlight, the solution is counterintuitive. In springtime, prune the long side lightly and the short side heavily, Kneib advises. The reason: trimming the shorter branches prompts them to grow faster.

With trees or shrubs, cutting in the right place is critical. Allen Shiga, a tree biologist, teacher and author of *100 Tree Myths*, presented one of the most aggressive pruning associations, the abandonment of the back cut. "Years ago, we removed branches as close as possible to the trunk," says Shiga. "Today's practice is to avoid coming into the collar at the base of the branch." The collar, a raised shoulder at bark and wood, protects the wound within the first year after pruning. It's also a cue to cut on the far side from the collar. "Cellulose is made of glucose," Shiga says, "and a stub is like a stick of sugar that invites microorganisms to enter the plant."

The bark of a tree or a shrub is like human skin, growing it makes the more aggressive vulnerable. The secret of good pruning is not to hack and whack like a jungle explorer but to visualize a tree's long growth pattern, then wield the shears with a surgeon's care. ■



When the 30-year-old specimen, known as the 'old man' of the forest, was cut back for the purpose of the project, it was found that the tree was in poor health. The pruning was done in a way that would promote the tree's health and allow it to grow back. The tree was cut back to a height of 10 feet, and the canopy was removed. The tree was then treated with a fungicide to prevent rot. The tree was then treated with a fungicide to prevent rot. The tree was then treated with a fungicide to prevent rot.

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"Home owners should see their entryways the same way they see a picture, as something that needs an interesting frame to enhance it," says architect Dennis Wiedick. "Look at the house, and determine if it has a clean-cut style. If it does, the screen should embody that style. If it doesn't, consider the style of the door it goes over and don't be afraid to add a little character or a bit of whimsy to a plain inside. You can even have it in the screening style inside."

A small industry has geared up to produce hundreds of different designs to accommodate people who are determined to choose a screen door that rises above the ordinary. The manufacturers mean a little more but will custom-build a door of railroad, wagon, pine, oak, poplar, ash or Douglas fir. Many are built solidly, with massive end-grain joints and face denting. Keep one of these should stop a visitor's eye as effectively as a soap jar hawk.

Continued on next page

BY JOE GARTER  
PHOTOGRAPHS BY BENJAMIN OLIVER

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# LETTER from This Old House

## ALL YOU NEED IS FAITH

t



This Old House has come to the City by the Bay—San Francisco—one of the great cities of the world. I spent my childhood in the Bay Area, so far, so San Francisco is local with memories snapping on the way home from school or watch the fog spill through the Golden Gate, sitting by the waterfront with my father while freighters unloaded cargo from the world over. My family's house in the Berkeley Hills had terrace-around hills, and my dad had to pick up the entire structure to do repairs. I can still smell the damp crawl space and pungent wood preservation and hear him muttering about the crawling of the house jacks. My father was not a professional, but he was unfazed to tackle any job. The TCH writer/proper reminds me of the challenges my father took on. The building was originally a church, built in 1907, right after the big earthquake, by the Reorganized Church of Jesus Christ of Latter Day Saints, with a basement that still graces the nave. When the group moved in 1983, the church became a synagogue for a predominantly gay and lesbian congregation. Recently the congregation outgrew the little building and sold it to Mark Dvosak and Laraine Ann Bishop, who intend to make it a home.

Dvosak and Bishop will have to overcome formidable obstacles. For starters, it will cost \$31,000 to rejoin the building to meet California's earthquake codes. Then, the crew will transform the traditionally nonresidential structure to include a kitchen, bedrooms, bathrooms and a laundry, not to mention new plumbing, heating and electrical systems. The building extends right up to its lot line so there's no driveway or yard. Dvosak's mother, for one, thinks he and Bishop are a bit over the top to take on such challenges. But Dvosak designs cars for the Gap and has had a lot of experience handling wild, unkindly buildings. Bishop works as a fashion and knows how to create beauty. So, although we first react to it as a side with Dvosak's mother, I have to say: Maybe it's blind faith, maybe it's vision, but looking at the mind's eye of these home owners is a remarkable dream. Something in their intensity reminds me of my father and the questions that got him through his renovations. We at This Old House will support Dvosak and Bishop all the way. Still, if any members of the congregation that once met here are reading this, please know that a little additional help in the form of prayer—English or Hebrew—would be appreciated.

—Steve Thomas

PHOTOGRAPH BY DAVID ALBANESE

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an  
**american**  
craftsman

As a young man, Sam Maloof found an old friend in his environment, as he described his childhood skills using a few basic tools. A half-century later, his shop is filled with an extraordinary array of custom tools and jigs, screws, clamps, and clamps. He often refers to his workshop as a "museum of tools." He says, "And that's what I am a craftsman."

## woodworker

Everything Sam Maloof touches—every chair, every table, every cabinet, every rafters, every molding, every window, every door, every latch—reveals his genius

Sam Maloof made a world. In a citrus grove now surrounded by malls and houses, in a wood shop where he hand-built furniture that is now revered as art, in the home he crafted one room at a time as he could afford the lumber and where he has lived the last half century, almost every minute of every day, with the wonder of his life—his wife, Alfreda—Sam Maloof made a world. He nurtured his lemons and oranges and figs, planted walnut and sycamore trees that started as cuttings the size of his thumb and eventually grew to engulf the grounds. He tore down a chicken coop and built a shop that always smells of sweet, fresh wood. He tore down a shack and built a house

thus, like a pair of modern sandals, has no front or back. In the kitchen, he laid bricks without mortar so that each step makes the noise of wood clogs. Then he moved on to the living room. Fred's study, the sky's tower, the guest room with a link, the bathroom overlooking the gorge. The house ultimately came to 7,300 square feet—26 rooms that unfold like a gyronid's secret chambers adored with handmade red wood doors, windows and joineries, two doors would also latch that impossible flying fish or hours on trails, jagged-edged wooden dogboards ruled so the wall like abstract art. Douglas fir rafters with rafter-and-roof joints at their peaks, window frames joined with dovetails, even toilet seats handmade from English oak and black walnut. Outside the gorge, rain and cracks gully and open and back as magnets on white, inside the gorge, birds are always singing and a breeze is always ruffling the trees. The question everyone wants answered at World Sam Malloof's craftsman genius: how blossomed if he had not first created this world as he lives and works? In other words, did the genius create this place, or did that place create his genius?

"Oh, I don't know," Sam says. "What do you think, Fred?" Sam and Fred are parting around their house in Alta Loma, California, at the foot of the San Gabriel Mountains. She is riding the teacher. He is giving a tour of the house and the 300 handmade chairs and tables, desks and vases, coffee tables, beds and dressers that decorate it, of the woodshop, of the 6 acres of banana, peach, pear, apricot, figs and avocados that sit like an island in a spreading suburban sea. But then aloud, like Atlanta, is about to disappear forever, to be buried not underneath but under concert, a new

section of the nearby Foothill Freeway. Because Sam's house and workshop are in the National Register of Historic Places, they will be moved to a snugly city square a few miles away and turned into a working museum. Sam will design and help build a new house on the new grounds for himself and Fred.

"It's one of scary sometimes," Sam says of his past and future, which have seemed almost to override him in recent years. His firm is in the Metropolitan Museum of Art, the Smithsonian Institution's Kennedy Gallery, the White House and the homes of former presidents Jimmy Carter and Ronald Reagan. A house contract he sold for \$1,800 about 23 years ago resold recently for \$150,000. One of his new high-backed rockers today tells for \$18,000. "Sam's famous rockers" (geographic quotes that transcribe the sensory delights of sight and touch), "Jonathan Fairbanks, creator of American decorative arts and sculpture at the Museum of Fine Arts in Boston, has written: Sam is hailed today not as a furniture maker but as an artist. Yet for all his success, Sam, at 82, is too reluctantly modest to take credit. And Fred, at 86, is too down-to-earth to thank Sam—or anyone, for that matter—his deserve the world renowned status he has achieved."

"God's been very good to me," Fred says. "I'd say I was lucky," Sam says, "but I worked doggone hard." Fred flashes an ironic smile. "I didn't know he was going to be so famous."

Sam is embarrassed. "Oh, Fred." "Fred helped me," Sam says. Fifty years ago he was working as a graphic artist for a California company that made decals, but he wanted to quit and make furniture for a living. "She didn't say, 'You're crazy. Just stay where you are. At least you're making a living.' She said, 'If you want to do it, I think you should do it.'" After Sam lost money on his first commissioned pieces of furniture, he told Fred he was going back to graphics. She said, "No, you can do it."

"You talk about luck, hope and charity," Sam says. "She had a lot for me. I would have given up if it hadn't been for Fred."

"I was just happy he was doing something he loved," Fred says. Doing what Sam loved—crafting about 50 pieces of furniture a year for 50 years—has made him one of the most respected craftsmen in the country. His chairs have the cooing grace of a gazelle, the embracing comfort of living arms and the tactile security of supple skin. They look and feel like living creatures, not pieces of wood connected by doweled and glued joints, but single, seamless waves of wood. Sam once watched as the blind blossomer Ray Charles caressed a piece of his furniture and announced that it had "soul." Sam likes that story because soul is a place beyond words, where hand, head and harmony blur.

"You can't have soul without harmony," he says. Sam and Fred are short and silver-haired. She is lively and fragile and walks with an airy glide, her arms like tickled up in a little swim. She speaks so softly that the last words of her sentences, like a distant sound trailing off, can be lost. She has a mild laugh, more like a sigh. And that acute smile. Sam, on the other hand, is compact and muscular, sort of gentle giant. He walks with the spring of an athlete. He speaks slowly but with a deep voice that is always audible. He looks a decade younger than his years, easy.

Fred has always kept Sam grounded. Early in his career, when art show judges rejected two pieces of Sam's work, he kept dogged around the house looking for sympathy. "Sam," Fred said, "you

don't need for the eye." Decades later when he won a \$375,000 MacArthur Foundation "genius" grant, he was embarrassed at the ceremony that other winners' ribbons went on and on with various accomplishments and advanced degrees. His read, "Sam Malloof, Chino High School graduate, 1934, designer." Fred's last finished his smile. "Sam, I lost close out a person here who knows how to make a chair." And when President Jimmy Carter and First Lady Rosalynn, who own several pieces of Sam's furniture, stopped by the lemon grove one day, it was Fred who calmly asked the Carters to stay for dinner.

"She cooked chicken casserole," Sam says.

Fred always. "Well, that's what we would have eaten."

"And he," Sam says of President Carter, "had two helpings."

Fred believes Sam could write a book about the famous people he's met.

"No," says Sam, suddenly serious. "A woman. How I met and married you."

Now Fred is embarrassed. "Oh, Sam."

The Malloof workshop continues to the house through an alcove off the living room. A guest list racks a cork board are the long, high-backed bed and chairs are everywhere—half built, bolt, assembled, mended, unfinished, for sale. They will go to a CEO in the Napa Valley. One will go to Singapore. Two to Atlanta. Each takes about a week of Sam's carving, shaping and gluing. Sam and three workers will then sand and finish them. Fred will send the bills and enter the sales in the books. Wooden templates marked with the names of the last people to buy each style of chair—Miles, Evans, Mery, Huff—hang like talismans from the ceiling. Hiding around the room are jitters, lathes, a planer, a hand saw, a drill press, a shaper and a spindle sander. And hauled in a wooden rack along the wall are chairs—Sam's favorite is 30 years old and has been sharpened down to a 1-inch thick.

"It's like a fountain cup," he says.

"You got used to it?"

Sam still works 60 hours a week in the shop, down from the 80, 90 or 100 he worked as a youngster not searching out a living. Now almost every day, other

All 26 doors in Malloof's house have windows like the one described. The sitting room alone has 12 in made from a small piece of mahogany and a nail that he found on his former porch. The handrails are a variation



The Douglas fir house in Sam and Fred's bedroom have windows and doors. Sam also made the sculptured wooden pedestal table, the wooden floor chairs, and the mahogany panel wall. Sam's father left with per Columbia University, Princeton University, and the Malloof family. People should surround themselves with beautiful objects they love," he says.





Sam drops timber by picking branches, an activity his wife, Freda, calls the "Sammy ballet."

he and Freda cut the limbs she has made, he takes a nap, Freda awakes. She lusts on Sam's wolf limbs, and that worried Sam. Their son, Simon, who is a woodworker, had never seen his father so generous and disinterested, so unable to concentrate, as when Freda was sick.

"What'd she doctor say," Sam asks Freda when she picks her head into the scrubland after crawling from a morning doze up.

"I'm fine."

"I'm sure glad you're OK," he says as Freda heads back into the house.

He is quiet for a moment, still looking worried about Freda. Finally, he goes on with his concentration. "The way people react to my furniture," he says, "it's almost embarrassing." He gets letters by the hundreds—the woodworker who says meeting Sam nearly more than a decade ago changed his life, the composer who trades Sam's furniture as inspiration for his music, the woman who says that, every time she looks down at Sam's chair in her living room, she cries at its beauty. Sam is human. He likes the respect that borders at times on adulation. But it bores him.

"I went into woodworking thinking it would be a nice way of making a living," he says. He wasn't thinking about becoming famous or rich or making a chair that would be enshrined in the Smithsonian. He just couldn't imagine competing in an office cubicle. But now people study Sam to understand how the way he lives his life has fostered his creativity. He tells the cautious that creativity is inherent in humans, God-given, although it can be either nurtured or suppressed. And about discrimination matters.

Sam has known craftsmen who worked hard for their jobs and found that no one would buy their furniture. They believe hard, deep cut. He has known woodworkers who believed they deserved recognition after making only a few pieces. He has known furniture makers who told their doing as to production companies, took the money and never built another piece. Sam believes that affirmation, glory and wealth are motivations that will do little to create a few craftsmen. He says, "You do it because of the love."

In his shop that morning, Sam is



Sam and Freda gates, which have evolved since Sam as a constantly modified set of a hand down, even now at 60, by which a gate is changed with income of Douglas fir.

working for himself. Forty-five years ago, he made a chair for Freda's mother, now dead. He has looked at that chair with his performance eye for years, thinking the back is too small for his body and that he should fix it someday. Today is the day. He has taken a 2½-by-4-by-16-inch chunk of walnut in his hands and begun to sculpt it: on the head rest, turning away much of its thickness into a carving where along what will be the neck back of the chair. As he usually does, Sam stops what he's doing to work on another chair for a while, turning a leg on the lathe. Biddish walks upstairs into his den, eyes closed and arms

"You have to feel it," Sam says of the work. "You make a point that fits absolutely perfectly, and you feel it. I still punch myself. I'm not a workaholic. I just enjoy my work." Never has Sam had a day when he woke up and didn't feel the drive to work. "Sometimes the day is gone before I get started," he says. He wonders: What if he had opened a workshop somewhere in an industrial zone, constructed there every morning, constructed better every night? Would he have made the furniture he did? He thinks not.

That would—this shop, this house, the grove, Freda, his daughter, who grew up here running in and out of the shop, his son, who became a woodworker in the grove, the son who has been with him for decades—this world around him as much as Sam created it. He is a meticulous man, who painstakingly laid the stones at his house's entryway to look in as if they were scattered at random. Drudging here is as if Sam took a pencil and drew this world, then carved it. With stones laid, by moss, olive carriage and epicurean toppings carefully placed, woodwork covering nearly every square inch of the house. Like a poet who writes a line and then must suspend to that new morning line to the next sentence, Sam was shaped by the world he shaped. His creativity, his beliefs, is rooted here as the grove, in the house, in the workshop.

Freda is back, standing at the door in the shop, waiting for the lathe to wood down.

"What's up?" Sam says.  
"Seth died yesterday afternoon."  
"Seth died?" He was a friend from their Methodist church.

"He did."  
"I saw him yesterday. He was fine."  
"He was in the garden, and he fell over dead."  
"Oh, my God! This is a sad thing."  
Sam goes back to turning, clearing his mind as he presses a gauge into the narrowing hollow of the chair leg. Spots fly again.

"That's the way to go," he says—in the garden, doing what you love. "People say, 'Work must be the most important thing

Unknown to Sam at first, Freda kept a diary with accounts of every piece of furniture he made, the name of the person who bought it and the date it was sold.



in your life' and I say, 'But it isn't. First comes God, then my family, my friends, my work, in that order.' Without my family and friends, I would have no interest in work."

That sentiment, beyond furniture, is really what has made Sam Maloof famous, as he and Freda have become a moral lesson on what so many people fear is missing in their lives. Sam and Freda left the business, the workshop world to live on a citrus grove beyond California's industrial zone. Sam never advertised. He once turned down an offer worth \$22 million to mass-produce department store versions of his furniture. People came to him by word of mouth, like disciples. He labored day and night in his work-sanctified shop, and they came to him. Life for Sam and Freda became like a piece of Sam's furniture—organic and seamless. He and Freda walking the myrtle grove before breakfast, the stopping by the shop on hot afternoons with lemonade, the two of them cooking dinner at night for one-handed woodworkers, CEOs, even a President.

So what is the secret to creative work?  
Sam tells this story: He once sent a friend's son looking for a summer job to the famous Pasadena woodworker George Nakagawa. The boy later called Sam and told him that Nakagawa had hung up on him. Sam asked the boy what had been said.  
Nakagawa: "I couldn't teach you to sweep my floor in three months."

Buy "I know how to sweep floors!"  
The correct answer: "If it takes a year, I want to learn how to do it."

"I would have hung up on him also," Sam says. "There has to be a hurdle. Persistence is very important."

The men who work with Sam are master craftsmen, but sometimes for weeks they do nothing but sand and spindle. "But they wouldn't even think of doing a poor job because they were bored," Sam says. "It isn't because of how much I pay them. They do it for themselves. You have to work with integrity." To be a fine craftsman, Sam believes, you must first be a good person. Somehow the qualities that make good people—honesty, persistence, integrity, respect—transfer to the objects they make. To Sam, that is a gift passed from God. Above all, what is



Sam uses a hand sander in the workshop to shape the arm of a chair. "I can use 100 sand on old pieces of furniture, and I just turn before I use it on 50 more, and a soft body is very good," he says. "It's a good feeling."

door latches, the dovetailed redwood window frames, the propped Douglas fir rafters will all go with them. So, too, will the 300 pieces of Sam's furniture—the chairs, tables, desks, settees, beds and dressers, the numerous mouse-stained Sam made for realia (Jon Hinks, who killed it back when he died). And, of course, the piece Freda is now reaching gently with her fingertips, that cradle on her face. "This is my rocking chair," she says. "He gave it to me. It has my name on it."

Made for Alfredo Maloof, Christmas, '72. 25. All my love.  
"It all belongs to Freda," Sam says.

But much will stay behind—the epicurean rice Sam placed in a sipping chair as new a guest once, the dry that compass under his boots on morning walks, the dust that rose with each step, the sunlight as it flows over Freda's knees. These pieces of Sam's world can't be moved. But he will not be depressed. "Freda and I have the chance to start life over again," he says. Sam has plans. He will replicate the scrumptious grove on his new land. He will plant wheat and maple saplings that will be given to hope. He will build a Japanese tea house over the land's arroyos. And he will build a new house. "The house," he says, "will be like a piece of furniture."



Sam Maloof, the Pasadena woodworker, is a master craftsman. He says, "I can use 100 sand on old pieces of furniture, and I just turn before I use it on 50 more, and a soft body is very good."

God if not goodness living in the hearts and minds and actions of people? Sam says he can teach anyone to be a good woodworker. But a person can't be a fine woodworker without a good heart.

"You have to be able to see the beauty around you," Sam says. Once he and Freda were walking through the woods, stopping to look at how a leaf was shaped or a fern held its flower. "And then Freda saw a little leaf's nest. It was abandoned. It was so beautiful. To see how a tiny bird could create and build such a beautiful nest is amazing to me. Life is discovery." They took the nest home and still have it on a shelf. Each time Sam and Freda notice it, they are transported back to that day in the woods.

It will be hard for Sam and Freda to leave this made world.

That bird's nest, the flying-dish door latches, the dovetailed redwood window frames, the propped Douglas fir rafters will all go with them. So, too, will the 300 pieces of Sam's furniture—the chairs, tables, desks, settees, beds and dressers, the numerous mouse-stained Sam made for realia (Jon Hinks, who killed it back when he died). And, of course, the piece Freda is now reaching gently with her fingertips, that cradle on her face. "This is my rocking chair," she says. "He gave it to me. It has my name on it."

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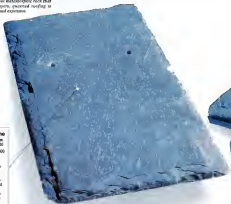
Sam Maloof is again about to make a world. The questions still: Will he create that place, or will that place create him? "Well," says Sam, "you can't have one without the other." ■

# THE RIGHT ROOF

Here are your options when someone says: "The new roof will be \$27,000, please."

## REAL SLATE

Carved or snapped from metamorphic rock that flakes into thin layers, quarried roofing is durable but heavy and expensive.



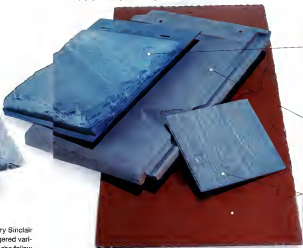
## Quarried Stone

INSTALLER COST PER SQUARE: \$200-\$1,000  
DURABILITY: Up to 100 years

**COMMENTS:** Weighs 7-12 lbs. per sq. ft., requiring a sturdy, engineer-approved roof structure. Should be listed ASTM D1 because cheap, quarried slate can fail in as little as two years.

## MODERN CONTENTS

Lighter and less expensive, slate substitutes succeed in looking decent in looking like the real thing.



## Plastic

INSTALLER COST PER SQUARE: \$400-\$450  
DURABILITY: 30-year warranty

**COMMENTS:** Very light—7 lbs. per sq. ft. Holds its look, fire resistant. Won't rot or support mold.

## Clay

INSTALLER COST PER SQUARE: \$400-\$600  
DURABILITY: 40-year warranty

**COMMENTS:** Survives harsh weather cycles because it absorbs little water. Weighs 3-5 lbs. per sq. ft.

## Fiber Cement

INSTALLER COST PER SQUARE: \$200-\$300  
DURABILITY: 60-year warranty

**COMMENTS:** Consists of cement, sand, wood and other fibers infused in various textures. Fire resistant. Weighs 4 lbs. per sq. ft., but as much as 10 lbs.

When the slate roof on her 1936 Colonial began "disintegrating," as Mary Sinclair puts it, she learned that a replacement would cost \$27,000. As she idly fingered various faux slate samples at a local roofing center, she flirted with heresy: Should she follow other home owners in her neighborhood in Washington, D.C., and settle for chunky asphalt shingles that mimic slate? No, she ultimately decided. Digging deep, she invested in

BY BRAD LEMLEY PHOTOGRAPHS BY TOM WOLFF STILLS BY MICHAEL GRIMM

house Pennsylvania state, even specifying a gray to match the existing shingles. "I'm a purist," says Seale, a 36-year-old property manager. "It has original things. I wanted to do it right." Her house still has its original wooden Victorian blinds shading the windows, and the sashen along without a disturbance or perhaps because the new ones are incongruous.

A roof repair man, wind, snow and storm barrels. But it also explains the history and function of whatever dwells beneath it. Early Chicagoans done their business to suggest the roof of others. The Chicago code on the corner of poplar took in present day, the life force, from extending down too deeply. *House Wisconsin*, an architect in Silver Spring, Maryland, believes self-evaluation is essential when a home owner chooses a roofing material. "The first step should be going to a professional," he says. "It's a very personal decision."

For old house owners who, like Seale, are blessed with a clear remembrance of the roof material device type is a short, straightening. It's a history index, this house originally had them. I want this. But for those grappling with future self-definitions, other considerations matter. Interview with architects, roof consultants, historians, contractors and owners yield a spreading range of worth of houses to people. Ignoring the complexities can lead to a messy fall. No other element of a house so evenly bears the raw burden of beauty and practicality, considering how a given material measures up in both categories is crucial.

First, establish whether the roof really needs replacing. "If it's asphalt and looking anywhere, you generally need to put in something new," says The Old House contractor Tom Silva. "Repair only makes sense for a fairly recent roof where you have specific damage from a storm, wind blow-off, that kind of thing." Roofs made of other materials may need a spot that needs evaluation.

Then think money. The choice that owners make may depend largely on how long they plan to stay. "Most people invest in a house with an eye toward resale," says Minneapolis architect Dale McHugh, who specializes in renovations so reworking that he prefers to turn them into masterpieces. "If a client says to me, 'Monterio might move me to San Francisco in a year,' an expensive, long-lasting roof might not be smart." But since McHugher himself has no plans to relocate, he says, "For my own house, I made the investment in a metal roof."

Perhaps in terms of rising resale value, the impact of an expensive new roof almost certainly won't equal the effect of more dramatic improvements inside. "If the choice is between spending \$40,000 on a roof or a kitchen, you'd have to be kind of eccentric to spend it on the roof," Winworth says.

Mark Graham, director of technical services for the National Roofing Contractors Association, suggests weighing the conformity factor. "I think it makes sense to match the neighbors," he says. "Asphalt is a common look. Generally if you use it, no one can accuse you of having a weird roof." In 1996, asphalt shingles ac-



After inheriting her parents' Colonial in Washington, D.C., in 1982, Mary Shulman chose to replace its half-century-old slate roof with the roof shingle rather than a modern equivalent. "I'm not necessarily aware of all our materials," she says, "but slate seemed right for me."

counted for 64 percent of residential reroofing—compared to less than 4 percent eight years ago for wood, metal, slate and tile. (Most of the rest went for at least slope roofs with rubber or other built-up coatings.)

Drewn Woodley, a residential architect in New York City, offers another consideration: ending how "permanent" the roof is. "If you're got a shallow gable and lots of interesting architectural features on the facade to draw the eye, don't spend a lot of money on it," he says. "A good asphalt shingle works fine."

The presence factor led Dana Hughes of Stamford, Connecticut, to the opposite decision. He used cedar shingles to replace the asphalt on her 7,000-square-foot, century-old Colonial. "The house is below the snow

When you walk by, you see just above eye to eye with the roofline, so the roof is very prominent," she says.

The quest for historical accuracy also guided her choice. Its cornering, the last found her house's original wood roof based on several layers of asphalt. Andrea Gilmore, a Boston-area conservation consultant, says that wood shingles look right on many Colonial and Federal houses because "wood shingles predominated on American roofs through the middle of the 19th century. In that era, you really see shingles only on houses near quarries."

But asphalt has a long history, too, and can be the historically correct choice on modest houses less than a century old. In 1897, a Connecticut manufacturer patented rolls of felt with coal tar, sprinkled the sticky surface with fine gravel and started the asphalt roof revolution. With the three-tab asphalt shingle, introduced in 1903, professionals' householders could—without paying too

In highlights (arched roof details such as in dormers and a gable front window), Drewn Woodley of Stamford, Conn., chose to reroof with cedar shingles. "We wanted to preserve the house's integrity and still have it hold its own with the roof."



## WOOD

Sawn into shingles or split into shakes, cedar, redwood, southern pine and other woods once made most houses in the West and Midwest. Modern products promise longer life or lower cost, plus the fire risk.

### Cedar

INSTALLED COST PER SQUARE: \$320-\$350

DURABILITY: 30-45 years

COMMENTS: Should be installed over slip sheathing or underlayment of shingles not available. Grading is lower than underlayment with the material. Weighs 3 lbs. per sq. ft.; heavy shakes can weigh up to 5 lbs.

### Cement

INSTALLED COST PER SQUARE: \$200-\$250

DURABILITY: 25-year warranty

COMMENTS: Manufactured product; mounting stakes are consistent. When loose, can't be replaced without extensive tear-down cycles. Weighs 6-8 lbs. per sq. ft.

### Metal

INSTALLED COST PER SQUARE: \$400-\$600

DURABILITY: 12-year warranty

COMMENTS: Made of aluminum, G-19 to 1600. Manufactured, kept flat and last 50 years, then can be recycled. Very lightweight—44 lb. per sq. ft.

### Plastic

INSTALLED COST PER SQUARE: \$275-\$425

DURABILITY: 12-year warranty

COMMENTS: Five-reinforced fabric not as resistant to rot or insect damage. Weighs 4-6 lbs. per sq. ft. Installation is fast; panels are big—about 20 sq. ft. ft.

## METAL

*Before being shaped to mimic wood, slate and tile, metal shingles on the roof are a distinctive roofing material. Look for one of their gleaming copper roofs—it may be the last bonded to an asphalt shingle.*

### Copper & Asphalt

INSTALLED COST PER SQUARE: \$350-\$550

DURABILITY: More than 60 years

**COMMENTS:** Made of copper and asphalt, this is a look over long-term and asphalt, but requires copper nails and weights before it's made. Made in three 100-piece, 100-piece, 100-piece.

### Standing Seam

INSTALLED COST PER SQUARE: \$350-\$500

DURABILITY: 50-75 years if painted every eight years

**COMMENTS:** Traditional steel roof with a standing seam. Installation requires metalworking experience. Can not be used if there is no ventilation in roof. Made in two thicknesses, 24 and 24 1/2 in.

### Vertical Seam

INSTALLED COST PER SQUARE: \$350-\$500

DURABILITY: 20 years with initial paint

**COMMENTS:** Also made of steel, but panels are covered with vertical ridges. As insulation is better. Available in two thicknesses, 24 and 24 1/2 in.

peering up from the attic. Even if the original roof has been torn off, she says, "You often find fragments of the old roof in the attic where the additions are attached." In her own 1799 house, cedar shingles cover the triangular section where the addition's roof intersects the original house.

The roof framework can also provide clues. Spaced horizontal boards, known as skip sheathing, point to an original wood roof. Heavy solid sheathing, steep pitches and closely spaced rafters suggest slate, which can weigh 1,000 pounds per "square" (100 square feet), quadruple the weight of asphalt shingles. Narrowing the choice to a specific material leads to more decisions. For asphalt shingles, Weidick often specifies dark, laminated versions. These approximate the look of shingles or slate but cost far less.

And asphalt comes in a broad palette of colors. "I'm often for white because it reflects sunlight, helping to keep the house cooler in the summer. "Red works well with all white homes,"

Weidick says. "Green are traditional on dark-brown backgrounds. I most often use black or charcoal gray. It can go with a range of colors." Weidick particularly admires the look of a black roof on a house with weathered white gray cedar shingle siding.

Asphalt's color versatility inspired Glen Haver of Weston, Massachusetts, to replace the plain shingles on his house with a multi-toned look with a variety of shades with shades from suggesting slate. "You'll never mistake it for real slate, but it's working on the house," he says. "It really fits with the 1930 look we were going for."

Graham says home owners shouldn't worry about whether their roofs are so-called organic asphalt shingles (manufactured on cellulose mats) or the more popular fiberglass-roof systems. "The organic shingles are more flexible, so they are better to apply in cold weather. But fiberglass has a higher tensile strength, so it's really a trade-off. Either type will last about the same amount of time, and they will cost the same."

## Load

INSTALLED COST PER SQUARE: \$350-\$500

DURABILITY: 100 years or more

**COMMENTS:** Surface allows, limiting a dull gray finish and forming a protective layer that keeps heat from melting off in summer. Weighs 4 lbs. per sq. ft. Shingles are 24 in. thick.

## Copper

INSTALLED COST PER SQUARE: \$350-\$500

DURABILITY: 100 years or more

**COMMENTS:** Designed for very thick, 10 mil-thick copper, no underlayment required. Light weight—just 1 lb. per sq. ft. Shingles are 24 in. thick.

## Tile

*Concrete tile roofing is made of clay shaped into half cylinders for a Mexican look or into flat panels for an English or French effect. Concrete is a close substitute. Other materials achieve the look only from a distance.*

## Clay

INSTALLED COST PER SQUARE: \$350-\$500

DURABILITY: 30-100 years

**COMMENTS:** Traditional but very heavy—10 lb. per sq. ft. Engineers should check roof before tiles are installed.

## Cement

INSTALLED COST PER SQUARE: \$350-\$500

DURABILITY: 100 years or more

**COMMENTS:** Extruded and cured by a method developed in Europe in 1923. Easily repaired, old cement tiles look, and new ones look like. Weighs 5 lbs. per sq. ft.

## Metal & Stone

INSTALLED COST PER SQUARE: \$350

DURABILITY: 50-year warranty

**COMMENTS:** Steel panels are 18-22 by 48-28 in. Manufacturer says fastening system results in great strength during earthquakes. Weighs 1.8 lbs. per sq. ft.

## Metal

INSTALLED COST PER SQUARE: \$500 and up

DURABILITY: 20-30 years

**COMMENTS:** Fast installation because panels are 36-75 in. wide and as long as roof is high. Available in aluminum, 6061 in. thick and in steel, 22-24 in. thick.

## ASPHALT

Severely, nearly a century ago, to remove gravel or shingles, then slab asphalt shingles are the cheapest solution and are often the fastest, only correct choice as well. New styles add texture.

### Standard

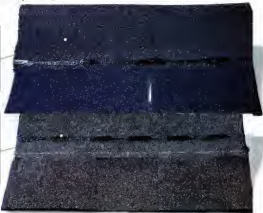
INSTALLED COST PER SQUARE: \$10-\$13  
DURABILITY: 10-20 years

COMMENTS: The most popular residential roofing. Features are familiar with its status in a variety of colors. Weighs 2.7 lbs. per sq. ft.

### Laminated

INSTALLED COST PER SQUARE: \$10-\$14  
DURABILITY: 25-40 years

COMMENTS: Becoming more popular on high-end houses because of its low, laid look. Includes cut line standard asphalt but weighs more—2.6-3 lbs. per sq. ft. May last longer because it's thicker.



The warranty number—the date of a life span of 20, 30 or 40 years—doesn't matter much either, he says. "The marketing and legal departments of these manufacturers hammer out a number together, but it has very little relevance to real-world performance." Graham says that shingle-making science still can't predict actual service life.

Instead, he advises buyers to look for the designation ASTM D215 on the wrapper of organic shingles or ASTM D3462 on fiberglass. Such designations, established by the American Society for Testing and Materials, meet the product's own baseline standards for durability. "What's interesting is that there are a lot of shingles out there that don't meet these standards," Graham says.

In warm, wet climates, get algae-resistant brands. Usually designed by "AK," they incorporate zinc or copper granules to inhibit the growth of algae, lichen and moss. In windy areas, get six nails per shingle's shingle instead of the usual four. "The placement of the nails, as few as possible without seeing them heads, is as important as the number," Tam Scho adds.

With cedar shingles, because the age is a non-factor. Sharon Peck, a historical architect for the National Park Service, notes, "Part of the myth of the wood roof is that it should look rough and weathered, because people are judging by age, deteriorated shingles. Historically, shingles were placed as dressed with a drawknife and looked smoother than present-day commercially available split shakes." Graham recommends avoiding wooden shingles treated with fire retardant. "Some chemicals that are good for fireproofing aren't good for the wood itself. If fire issues are important where you live, use something else instead of trying to make wood work." And Tam cautions that wood shingles must be installed over spaced sheathing, on top of fiberglass sheath or both



For the roof of his home, John Hunter of White, Mass., chose a historic wood shingle that is expensive but also has the benefit of being made of cedar. And since, he added, cedar makes sense in New England's cold climate, "You're not shivering and shivering and shivering and shivering and shivering," he says.

Slate, quarried in Vermont, New York, Pennsylvania, Virginia and Canada, makes sense only if it replaces an original stone roof, Tam says. "If you add structure when specifically designed to handle slate, forget it. It's very expensive to begin with. Add in retrofitting, and the cost is ridiculous." De Wellek, even replacing slate with slate is a dubious proposition. "If a house is old enough to need a new roof, it probably has deteriorated somewhat." Or it may have been deteriorated to begin with. "Slate is pure maintenance. It's the right to choose only for someone who has so much money they don't know what to do with it. In my experience, they are very high-cost and very high-maintenance roofs." Even in all-star neighborhoods, he says, "There are asphalt roofs now that can fit the context."

Probably so. But Seidler is still tongue-tied about the choice she made seven years ago—the ones put slate over her porch, which had asphalt. "The idea still is going up on some half-million dollar homes in the area, and it does have some downsides," she says. "But when you look up, you just know it's not slate." ■

## Same House...Different Roofs

Computer images of this Old House's 1994-1995 renovation project in Acton, Massachusetts, reveal how various roofing materials change the look of a house. Slate gives the 1716 Colonial's formal appearance, under shingles makes the house seem more rustic. It'll pass as the Yankee-household effort of choice. At \$4,400 for these five views, architectural modeling isn't cheap. But because owners often change details of a house under renovation, this approach could save money.



The Milton dream-house kitchen has all the right ingredients for a serious work space: tough counters, high-tech appliances and even a 19th-century fireplace.

# kitchen well done

When a craving for beef bourguignon arises, the future owner of the This Old House dream house in Milton, Massachusetts, he'll face an intriguing choice. He can preprogram a plethora of gleaming microchip-controlled appliances to simmer, bake or nuke his meal. Or he can dangle a pot from the iron hook in the kitchen's circa 1880 fireplace and spend a happy, anachronistic afternoon stirring the bubbling stew and nursing the umbra. Even if the owner seldom exercises the second option, he should still appreciate the non-nonsense ethic that the 19th-century hook represents. "We've made



creator: Steve Thomas details kitchen layout in the corner, one of the many scenes of the kitchen's complex design.

BY DIAN LEMLEY PH. TOPGRAPHY BY KELLER & KELLER



To understand the cast-iron sinks as they won't leave a protruding lip, Tom Shors' nephew Charlie Silve shows 'a lot of the top of the cabinet boxes with a pump sprayer.



Charlie Silve drops in the sink as they all finish, centered above the two base cabinets. Vermont Soapstone workers use make a template for cutting the sink holes in the counter.



After the sink holes are made, Jim Heath of Vermont Soapstone uses a hole saw to cut out these plugs—for a single-level faucet, a sprayer and an instant hot-water dispenser.



The sinks temporarily fitted off, Tom accounts dispose cabinet around the perimeter to hold the counter and cut on a daylight barrier between the basin and the cabinet.



After plugging the sink hole with a 1/2-inch plug, Jim Heath shows the soap stone sink with a pump sprayer.

the kitchen the modern equivalent of the old fireplace," designer Phil Mosgraber says. "This is a breakfasting, lunch or food prep area, not just for someone who really wants to cook. We kept a focus on the only other thing on making some visual statement."

Yet functionality began luxury. The architect, clean lines of the design, juxtaposed with the rustic's rustic bricks, create an appealing room destined to become the heart of the house.

To create this efficient, moving space, the first decision was the most essential: The TOH crew, including master carpenter Norm Abram, director Russ Moran, contractor Tom Silva and host Steve Thomas, agreed to move the kitchen from the house's den northeast corner to a sun-soaked south room previously used as a study. "That was really a no-brainer," says Steve. "The original corner was the worst possible spot for a kitchen. Now, you get the best of the sun but also the driveway, which comes right by the door so it's easy to unload groceries."

Three new double-hung windows on the south wall fill the 14-by-10-foot kitchen with sunlight. Mosgraber positioned the previous-mounted cast-iron sink directly below these windows—and now just to give the cook a charming view of the old farm. Anyone raising all levels in this light will have no reason to forget in the wilderness. Steve likes the 9-inch deep pot-friendly bowls. "That's an example of the workshop mentality we used here," he says, adding

that the tiny subunits typical of trendy design sinks are "only to hold your lenses and shavings." In other words, fit for nothing.

The sink is under-mounted, which means it has no protruding lip to catch water and drippings, and it hangs below a soapstone overtop (see sidebar). The 1/2-in. of subtly veined blue-gray stone bridges a difficult aesthetic gap, appearing both informal and dignified. "Soapstone doesn't have the glaze and gloss of granite, but it has that elegant quality with a softer feel," says Mosgraber.

For the base cabinets, Mosgraber and the TOH crew picked a model with flat-panel doors and hidden hinges. The men—on off-site with the brand's poplars "milled"—consider the cabinets neutral to the point of vanishing. "We chose a plain, simple style to go with the character of the house," Mosgraber says. "The colors make the room seem even lighter."

In the battery room, the stainless-steel appliances glow. Early in the design process, when famed chef Julia Child visited the new space that would become the new kitchen, she professed her simple appliance philosophy: Buy the best. "You are better off getting professional equipment because it's made for hard use," she says. "If you cook a great deal, it's less expensive in the long run."

On the other hand, a home's professional-quality range can cost

Charlie Silve, left, and Jim Heath of Vermont Soapstone use a hole saw to cut out these plugs—for a single-level faucet, a sprayer and an instant hot-water dispenser.

up to \$7,500. "That's a stretch," says Steve. "Yes, they are gorgeous, but they take up a lot of space, and the houses are so big that you have to replace a lot of your equipment." So the team conferred this kitchen with what Steve calls "conventional appliances," which is no surprise: Wolfgang Puck taught them with just Cleaver sauce and pizza. The most powerful burner of the six-burner gas cooktop is capable of producing a power 12,000 Btu. That's slightly less than restaurant-grade ranges, but more than enough for high-temperature specialties such as authentic Chinese wok dishes. (For safety's

sake, TOH plumbing and heating contractor Richard Trethewey positioned a sprinkler head nearby.) The spacious double oven offers both radiant and convection broil.

One short step from the cooktop and oven—as well as from an 850-watt wall-mounted microwave and an adjacent dish warmer—is the maple butcher block countertop, the kitchen's central preparation area. Although butcher block's popularity has declined in recent years, the surface—perfect for chopping and slicing—is one of Child's favorites.

Flats with the edge of the counter, the refrigerator backs almost built in. While the average residential refrigerator is between 27 and 30 inches deep, this one is just 24. The shallow front makes the compact easier to use, leaving the likelihood of cluttered, forgotten—and ultimately moldy—open-bottom yogurt.

Next to the fridge is a 32-inch-wide island. This glass-top island and stainless-steel island and stainless-steel island is a window of the view called Tom carved out of a corner in the basement just "A Call for the Bayes" (January/February 1998) and built what was to be 55 inches in length, depending on the wine and the owner's taste.

Although the room was already sunny, electrician Al Gallina installed 15 recessed and three surface-mounted fixtures, up-

## Soapstone Counter Culture

Molding the weighty presence of granite with the malleability of wood, soapstone counter tops "reflect the fact that this isn't an indestructible design," says Steve Thomas. "The more wear and tear this surface gets, the better it will look."

Craftsmen have specialized soapstone sinks into slabs and laboring counter tops since the 1700s. Unlike marble and granite, soapstone has a unique crystalline structure that allows it to be used and used thousands of times without cracking. Steve Bosman, owner of the 140-year-old Vermont Soapstone Company, says that demand for soapstone countertops in residential kitchens has soared in the last decade. "People like the fact that it instantly looks like it's been there for 100 years."

For an installed kitchen counter, Bosman charges about \$72 a square foot, making the cost of the Milton kitchen counter about \$2,000. "When people soapstone tops, they generally find us in the same range as solid-surface materials and the more commonly available grades of granite."

The stone consists of about 70 percent feldspar, the same stuff that, in powdered form, softens plastic. The remaining 30 percent can comprise various minerals such as iron or magnesium, accounting for hues ranging from white to gray, green and brown, although only gray stone is used for countertops. Some of Bosman's soapstone comes from a quarry in Charles, Vermont, but he gets larger slabs from Brazil, as he used those in the kitchen at the Milton dress house.

To hold the slabs in the cabinets, Bosman relies on grout rather than fasteners. "At 25 pounds a square foot, it's not going anywhere." He sealed the seams between the two slabs that make up the dress-house countertop by sheathing two-part translucent polyurethane-based epoxy on the edges with a putty knife, then pushing them together (the excess spilled onto clear tape he had affixed to both sides of the joint and sealing the dried excess smooth).

He recommends treating the stone with mineral oil, which speeds the natural darkening process. "If you don't use the oil, it will darken anyway, but the oil makes it happen uniformly."



Unlike other types of stone, soapstone can be cut with an ordinary circular saw that is fitted with a masonry blade.



ated by a wireless central lighting control that lets the house owner respond lights not only from the kitchen's three entrances but also from an automobile 60 feet away.

"So if you're got your arms full of groceries when you come in the door, the lights are already on a whatever power you've preset," says Gelfand.

A built-in desk tucked in the room's southeast corner will allow the bill payer to chat with the cook. "That will be the spot for a message board on the wall," says Mosigebler. "And I imagine cashbacks on those glass-door cabinets—it's sort of a new contrivance."

The floor is perhaps the sole element that falls short of the hard-working kitchen ideal. Made of multi-ply tongue-and-groove strips topped with just 1/8 inch thick, the relatively soft surface will likely appear hoarse and worn in several years. "It represents that exquisite process of compromise that always makes remodeling," says Silver, warning that vinyl "I was destined to do cheap looking and sit too unbecoming for comfort. Although this floor's pine surface will accommodate no more than two sandings, Tom contends that a solid-wood tongue-and-groove floor would have provided acceptable improvement. "Even then, you could sand only down to the groove. It would really give you some 1/4 inch of wear sanding depth."

Tom's solution: "To be sure of the finish." He recommends hiring a flooring professional every two years to buff the polyurethane surface with a fine-mesh screen and apply three more coats. "You've also got to scum out rips in high-traffic spots, like on the sink."

Whether the future owner will consciously ready protect the floor remains to be seen. But, generally, this technocratic person in culinary efficiency mode ready to serve hungry inhabitants just as the Mack back and glowing coils might have during the

Gulf War Administration.

A glory of stone and wood, of line, lively counters and tight wood triangles, the room belies Julia Child's prediction. Perched on a stool in the corner of the new space, she mislabeled a room both "wonderful and beautiful." To us, there is nothing sadder than a kitchen that is really made for a cook. I think things that are designed to be used always have an aesthetic beauty." ■



Using a router and tapered glass router, owner of Vermont house, carefully carves decorative grooves into the expensive counter.



As Jeff Mackays taps tongue-and-groove laminate floor strips into place, he uses a polyethylene Mack to cushion the floor.



Because the 18-1/2-by-43-1/2-inch mosaic of the dining table, the double-black-topped chairs can be used as the prep table and storage.



## OUT ON A LIMB

TALKS OF TERROR—AND EXHILARATION—FROM THE TOP OF AN 80-FOOT MAPLE

ROBERTA JENSEN PHOTOGRAPHS BY KYLE WITTE

**T**he tree is a 60-foot red maple, fully alive, growing out of a stone wall about 12 feet from a Cape Cod's screened-in porch. The maple is twice my age and could outlive my great-grandchildren. It weighs 4 or 5 tons and contains enough wood to boil a pot of water 40 feet high and 20 feet across. And it might kill me, because my job is to take it down.

People love trees but, as long as they continue to build their houses near them, the trees will have to be pruned and, occasionally, cut down. This maple must go because its roots will inevitably penetrate the foundation



1,000. The author, Roberta Jensen, took her rope and climbing gear and wedges to the top of the tree. She is climbing down, rope in hand, as the tree is cut away. On the ground, a man is working to lower the tree as fast as it can.



After being hoisted into one of the main limbs, James climbs in a crotch and reaches a limb that can cut pressure in the ground. He then cut the lower limbs to keep the higher ones from getting hung up on them later down.

branches and reduce the concern to rubble or, leaning, as it does toward the sunlight, it could succumb to a windstorm and crush the porch. If the men were dropped with me on it, it would fall with the kinetic energy of a 100-ton ship moving at 15 miles an hour and make a whump that all the neighbors would notice. But it is surrounded by other trees and too close to the house, so I want chains to the top and take it apart one branch at a time.

I've been climbing for seven years, since I was 25. It has been an ideal job for me, economic and well paid, and there has always been more work than I've needed. With a best-seller on bookshelves in stock, I don't need to climb for money. But one day a week I drive out of New York City to work for a friend who owns a small tree service in Westchester County. I spend all day climbing around with a screaming chain saw, then return to the city exhausted, filthy and sore. The work takes me back to my old self, which is where my working springs from.

My life depends completely on the strength of the tree I'm destroying—most of the rest of my work. Before I climb, I always look for weaknesses or damaged parts at the base and windpoker holes or large cracks up the trunk. It's not always possible to spot a dangerous tree. I once cut up a massive oak that had come crashing down—in full foliage and seemingly healthy—on a beautiful summer day in Massachusetts. The woman who called me said she had been *dingy* when the branch's honey suckling sound and looked over her window to see the moment 120-foot oak began its slow arc to the ground. The core of the trunk, as it curved over, had completely rotted.

I have always thought about that tree and how much I would have left up there in its crown. Trees that are like whales, sort of benevolent in their huge bulk, and the idea that their strength can let alone your relationship to them forever. Another climber I know, Dave Clark, whose tower, *La Torre*, over the company I work for, once tied into a big limb 70 feet in the air. He leaned back on the rope, and the limb began with a hideous crack! The next thing he knew, he was falling. "All I could think of was: *Get your feet underneath you!*" he says. Twenty feet over his fall, the branch caught in the crotch of two other limbs, and he slammed to a stop. He collected himself, climbed up so where he had been and went back to work.

The maple that I have to take down appears to be in straight-forward and maximum as tree work can get. The tree is healthy and often plenty of places to tie in with my line. I climb climbing spikes right to my boots, buckle a harness around my waist, clip a climbing line to it with a carabiner and step up to the tree. I pass one spike into the trunk, step up, put the other spike in, step up again and slowly creep my way up. The spikes keep me from falling, and my hands, strapped securely around the trunk, keep me from tipping over backward. When I get too high for comfort, I flip a safety line from my harness around the tree, clip myself in and continue moving up.

I climb slowly, carefully, never in a hurry. When I come to a limb, I unclip the safety line and re-clip it above. Ten meters lower, I'm at the top of the tree, looking out over the town. As summer, the foliage catches on much wind that even barely perceptible air disturbances make the tree move. I can feel a shift underneath me as if it were breathing. I pass my climbing line through a crotch and clip the line to my harness. Then I tie a locking knot, called a prusik knot, to the other end of the rope and start rap-



## Danger Zone

Taking a tree down is the arborist's last resort, done only when the tree is standing dead, clearly dying or sure to cause problems in the future. Near the house or that, a dead or dying tree should be taken down as soon as possible. Waiting might allow it to make out to take hold that a tree company will refuse to put a climber in it. A tree that is unhealthy or leaning over a house poses a threat, but a good arborist may be able to save it by selectively pruning new growth in the crown, cutting out diseased, crotching branches and split cracks together and taking all big limbs.

Call a tree company for an immediate evaluation if a tree shows any of these signs:

- Large branches that are dead or broken and hanging
- Girdles or weaknesses at the base of the trunk, noticeable amounts of rotten wood or patches of missing bark
- Cracks or seams where major limbs attach
- Other dead trees in the immediate area, particularly where there has been construction work that involved excavation and grading with heavy equipment
- A trunk that has much more of a lean than that of surrounding trees
- Severe or trunk damaged by heavy equipment, construction or soil addition or removal
- Signs of extreme pruning such as toppling (removing most of the crown), which can weaken and kill a tree—Q

pulling down. The rope runs from my harness, through the snatch above me and back down to the prunk, from which it dangles 70 feet to the ground. If I tie my hand off the prunk, it locks and I'm done to work. When I loosen it slightly, I can drop down to my next cut.

Above the trunk, the tree divides into two main sections, or leaders, one of which reaches over the house. Anything I cut off that leader might fall some the road, so I'd have to lower sections from a crotch in the other leader. For that I've brought up another rope, called the lowering line. Traveling to a crotch that is directly over a clear patch of yard and run the line through it. Then I drop one end down to the ground man, who wraps it once around the trunk to gain some friction when he lowers a heavy branch. I slowly work



To prevent a job up of branches, one man built up limbs almost as often as the climber cuts them off the tree. Usually one man can and the other down the trunk over to the climber.

my way out to the end of the last big limb, attach the lowering line and swing back in close to the trunk. The second man stands with his hand raised up, warning. I reach down to my belt and unclip the device saw—a small climbing saw with a 12-inch bar that's light enough to use one-handed—then choose the region, pick the cord and let 'er rip.

There are a lot of ways to make a cut, and the one I choose depends on what I want the limb or trunk section to do. The first limb I have to take off extends way over the porch. I could start near the tip and take the arch off in small pieces but decide instead to make a swing cut. With the rope holding up the tip, I make a wedge-shaped cut into the limb where it comes off the

## Choosing a Tree Company

There is a pitifully greater number than that which reputable tree companies deserve for fly-by-night outfits. In the old days, jack-legs, as these operators were called, would go door-to-door with a truck and chainsaw, offering their services but working with little regard for a tree's health or the homeowner's interests. Like most occupations, tree companies vary in the quality of their work, and the one offering the lowest prices rarely necessarily the one to choose. And pruning can kill a marginal tree, and then it costs money to tie down.

The International Society of Arboriculture offers some tips about how to select a tree company:

- Ask if the company has insurance for personal injury, property damage and workmen's compensation.
- Be skeptical of tree workers who look for jobs by canvassing a neighborhood. Most good companies get all the work they need through paid advertising and customer referrals.
- If a tree needs pruning, ask how it will be thinned. Workers should never over-splay, because they leave the limb with unsightly tears that can also become entry points for viruses.
- If the company says that a crane or bucket truck is necessary, ask if that will cost more and, if so, get an estimate from another company.
- To save money, you may be able to get a tree company to take the tree down, leaving you to handle the cleanup and wood removal. This can save a lot, but make sure the arrangement is clearly spelled out in a contract.

"A legitimate company should have signs on its trucks, and the foreman should be able to identify trees on sight and seem to care about trees," says Lorenza Costa, who owns the company I work for part-time. "If someone asked me, 'Is there any way to save this tree?' and there wasn't, I'd tell them that but in a way that made it clear I'd love to be able to save it."—G

Powered by a 95-horsepower, 4-cylinder engine, the chipper makes a helluva noise as it shreds brush and logs that are too small for the flayback. Left in use for a few months, the chipper will break down into a fertile mulch.



leader. The tip swings sideways and, when the limb clears the porch roof, I cut it all the way through. The ground crew lowers it to the lawn, and I move to the next limb.

Making a cut is probably the most dangerous thing to do in a tree, although it's not perceived that way. Climbers will hold the tree with a death grip when they're suspended or jerk awake in the middle of the night with falling dreams, but they'll cut loose a huge piece of trunk without a second thought. If they're going to get hurt, though, it will probably be by a big limb falling something unexpected. Once I was topping out a pine tree, and the entire top came backward toward me instead. I reacted quickly, having learned that even very heavy objects can be manipulated when they first start to fall. I braced my elbow, palmed the butt and slid 30 feet of white pine over my shoulder and down. Another came, the wind caught the top of a tree that Dave Coats was cutting and pushed it toward an electric line. The cushion would have killed him. He put both hands against the trunk and held it up for five minutes until the wind finally abated.

Handling the work's most obvious leads to a dangerous situation. Dusk may come too soon, a climber may feel uncomfortable or the job may have been ordered and is taking too long. Fortunately my job doesn't fall into any of these categories. As methodically as possible, I dismantle the tree, limb by limb, section by section. The good climbers, in a sense, are the undermen: once, whenever they do 30 feet in the air, so to speak, they hardly ever wringing. Like good pool players, efficient climbers don't do impossible things; they avoid them.

The tall maple is coming down easily. I finish all the first levels, then the other one or two over open yard and I don't need ropes—and start taking down the trunk in 6-foot sections. I rope off the ones that look the wrong way, so a ground crew can pull them over, others I cut just out. I make a wedge-shaped cut in the direction I want them to fall, put a back cut in on the opposite side and let the saw in the piece start to go. I only keep my saw running if a piece is going to take a long drop on the lowering line and the tree looks unstable. If there are hidden pockets of rot and the log gets too hard on the end of the rope, the entire tree could come down. In that case, my only chance would be to cut my rope and pump clear. I'd need a running saw to do that.

Massive tree failure is the climber's ultimate nightmare, a scenario no one wants to think about. Occasionally, though, I'm up in a tree that feels so secure on falling me that before making a big cut I pause to go over when I'll do it or start to fall. I've reduced it to four moves: Grab the tree with my left hand, cut the ropes with the saw to my right hand, jerk my spikes out of the trunk and pump clear. I'll have about two seconds. It's possible.

A few months ago, a very experienced climber in Connecticut cut a huge limb from what turned out to be an unstable tree. When the limb's parked the rope, the tree started to go, but the climber couldn't extricate himself in time. He rode it to the ground and was killed on impact. I like to think that I'd get clear, I like to think that tree would slow down enough for me to complete the final moves.

I see there's a moment before making cuts like that, the ground crew waiting far below, the tree looking slightly to the west. Then I pull the saw to left. The saw wedges cut, back cut, left hand to the tree, the crack of wood fiber snapping and then the unbelievable sight of a 300-pound section slowly toppling right in front of me, seriously weightless in impact. It's the moment between seeing in motion the malice of one's own destination and then being spared. All of tree work can be distilled to that moment.

Then it drops. It falls to the end of the rope. The tree shudders. Nothing happens. I take a deep breath, let the saw and look around for my next cut. It has to be simple. It has to be the cleanest, most direct route to getting my feet back on the ground. ■

## Drop It Yourself?

Home owners occasionally tell me stories of getting a fall climber up in a tree and doing the work themselves. I tell them stories of people who did that way. Ladders are inherently unstable and, when a big limb comes off a tree, the trunk can jerk back and forth and pop the wood like timber all the same amazing instant. Still, a tree that doesn't require climbing can be cut down by anyone reasonably competent with a chainsaw. The hard part is at least taking at the trunk is wide, and when you work you should always, of course, wear a safety helmet, eye protection, eye goggles, heavy boots and knee-caring shorts. To start, make a waist-high wedge cut in the trunk, facing the cut in the direction the tree will fall. The wedge should form a 45- to 60-degree angle and go only about a third of the way into the trunk. That will leave plenty of holding wood to keep the tree from falling prematurely. Make the next cut 3/4 inch back out horizontally, directly opposite the wedge and 1 or 2 inches above it. Any deviation from this alignment might make the tree fall away from the desired direction. If the back cut starts to pinch the tree, force the kerf open by driving in some plastic wedges with an axe head, wedge or mallet. A back cut that closes up means the tree is trying to fall in the wrong direction, and so more cutting should be done until the wedges have dipped to the right way. Arranging all goes well, the tree will start to tip forward as the back cut gets close to the wedge cut. At that moment, pull the saw out of the cut, hold the engine and step back with your back up. Sometimes that limb comes down when a tree starts to fall, and you want to not them coming. If you have any hesitation about taking a tree down safely and properly, call in a professional. Since a tree is down, you'll still have plenty of cutting, splitting and stacking to do.—J

After making a wedge cut, Dave Coats bark over a 30-foot pine limb safely killed by lightning. Every few seconds, he takes the chainsaw to check for movement and to avoid a direct saw's biggest hazard: pulling branches.

# one fine day who says you can't have christmas in april?

BY WILLIAM G. SCHELLER  
PHOTOGRAPHS  
BY KRISTINE LARSEN



**TOP:** In need of repair, the Miller house in Peoria, Illinois. To the right, Christmas in April volunteers make additions on the side of the house. **MIDDLE:** Bob Miller, 61, one house, under repair, sitting into place.

AT 8 A.M. on a bright spring Sunday in Peoria, Illinois, all is calm at a little blue house on Monroe Street. Ed and Wilma Miller have lived here for 25 years, but age and infirmity have caught up with them faster than they could keep up with repairs. The house has two better days. Within an hour, though, a host of volunteers will descend like a swarm of benevolent bees to perform a few-forward renovation miracle. In Peoria, as in hundreds of towns across the United States, it's Christmas in April.

Christmas in April is the sixth largest U.S. home improvement company. But unlike the fine-lager outlets, it doesn't charge its customers. Launched as a neighborhood remedy in 1993 in Midland, Texas, the organization has more than 200 nationwide affiliates today. The idea remains simple: providing labor and materials to make repairs for low-income home owners, particularly those who are elderly or disabled. The name came about because most of the work takes place on the last Friday in April and because an early beneficiary took one look at her deteriorated house at the end of the day and exclaimed, "It's like Christmas in April."

The organization is effective—160,000 volunteers this year will work on 5,000 renovations worth a total of \$48 million—because of its decentralized style. Each affiliate identifies the neediest houses—and the most deserving house owners—in its community and puts together a coalition of corporate and nonprofit sponsors.

"Each sponsor provides a captain and some of the volunteer crew live in the house," explains Joan Caselli, president of the Christmas in April affiliate in Peoria. Matching the sponsor and the house is a key to good results. Of the 20 houses that Peoria's program renovated in 1997, the Miller house required the most work. So it made sense to target



**TOP:** Volunteer Max Gera covers a kitchen wall with a fresh coat of paint. **MIDDLE:** Ed Miller, another volunteer, repairs the door trim. **BOTTOM:** From the front porch, house owner Ed Miller views the repairs.

TJ Home Inc., a local contractor, to act as sponsor. Home listed up with Saint Francis Medical Center, and the two sponsors underwrote those expenses and TJ workers' costs. Dave, a Home program manager and Peoria's Christmas in April vice president, says, "The hospital provided a lot of maintenance and repair people, and Home sent professional builders. The volunteers bring their own tools, and with these guys that means everything."

BY 5 A.M. SATURDAY, repairs are under way at the Miller house. Working side by side, doctors and carpenters remove coral portions of the front porch wall. The volunteers are tackling someplace the polystyrene insulation needs to be under new wallpaper. Bob Home, the contractor, is helping pull down cinderblock gutters. Inside, the CEO of Saint Francis Medical Center is up on a scaffold, rolling paint on a living room wall while a name from the hospital takes her first class in painting on old wooden doors. The small rooms are a tangle of pipes and legs, pipes and beams. The house contains as many people as could possibly fit without pushing each other.

Wilma Miller sits in a comfortable chair, watching the transformation of her house with a look that mixes confusion, perplexity and sheer amazement. "It's unbelievable that all this can get done so fast," she says above the din of an electric generator. "I've seen these people work before. All this would cost an arm and a leg, and my husband couldn't keep up with it." Ed Miller is in the early stages of Alzheimer's disease. When he was healthier, he used to lead a band when stops nearby had a major project going. "Ed was the most deserving guy in the neighborhood," says Frank Lyons, one of the leaders of the local group that unanimously nominated the Millers to partici-



**TOP:** Amid the construction, the crew breaks for lunch. **MIDDLE:** Carpenter Doug Davis and Terry Greene set wood for the porch, and last, window opening. **RIGHT:** From the front porch, house owner Ed Miller looks at the new porch. **BOTTOM:** From the front porch, house owner Ed Miller looks at the new porch. "It's like Christmas in April," says Ed Miller.

ipate in the program last year. Lunch rolls around early, at 11:30. The volunteers trade away the hospital kitchen staff's chicken and brownie and survey their accomplishments. They have already completely sealed one of the walls. They have knocked out the old front porch windows, have almost finished the exterior painting, and have hung a new back door. At lunch, Wilma Miller looks more relaxed, she's enjoying an occasional drink that with a neighbor. Her husband talks with a few of the volunteers about his days as a welder, farmer, bricklayer and church choir member. "We've all got to stick together," he says. "Don't we?" His neighbor agrees—and are back to work within seconds after the last beverage disappears.

Four o'clock. The Christmas in April crew is wrapping up. They have installed 21 new windows, covered three sides of the house with vinyl siding, replaced three exterior doors and two interior doors, installed the basement stairs, painted all the exterior walls and woodwork, installed and painted linoleum on the front porch foundation and plastered four shingles in the front yard—an impressive tally. The only real disappointment is that they weren't able to install a new vinyl siding on the front of the house today, the tedious job of rebuilding exterior window frames destroyed too much of the carpenter's time. The front siding will have to wait a few more days, but no matter.

Ed and Wilma Miller are all dressed up and headed to Peoria High School for the Christmas in April dinner, a gala event that centers on a Christmas tree festooned with pinecones. Wilma has a new outfit and hairstyle, a gift from volunteers who whisked her away from her wheelchair-bound house for the afternoon. "It was great," Ed Miller says again as he takes his wife's hand. "Can't do anything if you don't stick together." ■



**TOP:** Ashley Buckner and the team break for lunch. **MIDDLE:** From the front porch, house owner Ed Miller looks at the new porch. **RIGHT:** From the front porch, house owner Ed Miller looks at the new porch. "It's like Christmas in April," says Ed Miller.

*Pressure-treated wood resists rot and insects, but it's loaded with dangerous pesticides. Yet, safer formulations just sit on the shelf.*

## arsenic and old wood

bed. Another wants to build patio steps, possibly a fence. No matter what the project, they find plenty of material to choose from. At this store, half the wood in the lumber aisle is pressure-treated. "I don't know what's in it," says a man from nearby Ridgewood, as he piles up 2-by-4s to build a deck in his backyard. "I just know it doesn't rot."

Among building materials, wood is ideal: beautiful, strong, easily shaped. And it's renewable. Its one big flaw is vulnerability to decay and insects. For centuries, builders resorted to oily, smelly solutions like creosote to make wood more durable. Then, in the 1930s, scientists found a way to infuse wood with a solution that included copper (toxic to the fungi that cause rot) and arsenic (then the most common insecticide). To ensure the protection would last and builders and the environment wouldn't be hurt, they also added chromium. It triggered a chemical reaction that locked the pesticides into the wood.

The formula became known as chromated copper arsenate, or just CCA. But the industry called it pressure-treated because the chemicals were injected under great pressure. The wood dried with a green tint because of the copper, but otherwise it was similar to ordinary lumber—except that it stood up to even the dampest, warmest climates. Indeed, stakes pounded into a termite-infested field at a federal laboratory in Mississippi in the late 1930s remain intact "and some of them will probably last 100 years," says Jerald Winandy, a research wood scientist with the U.S. Department of Agriculture's Forest Products Laboratory in Madison, Wisconsin. For many decades, pressure-

It's Saturday morning at a home center in Paramus, New Jersey, and shoppers are hauling off plank after plank of greenish lumber. One couple has plans for a raised flower



This new deck near Charlotte, N.C., will hold off termites and rot for decades, but at what cost?

BY CURTIS NISBET



Even the smallest of pressure-treated structures by 2005—less than 4 pounds of arsenic needed to treat 150 square feet of decking. The recipe for this amount of chromated copper arsenate called for 2.5 pounds of red crystalline potassium arsenite, 1.56 pounds of white powder (see chemical analysis), and 7.5 pounds of copper.

wood contained a specialty product, people built porches, decks and fences of untreated lumber, cedar is the best. But at the price of these woods soared, marketers of plasticizing resins found a new market, pressure-treating as a way to convert their product into one that would command a premium. Sales of the pressure-treated lumber blossomed from practically nothing in the early 1970s to 467 million cubic feet last year—nearly a fifth of all softwood boards and timbers sold.

Usually every piece of that wood carried a label stapled to one end, the manufacturer's guarantee against rot and insect damage. Dumping sawdust on each pallet was supposed to be another label with cautions required by the U.S. Environmental Protection Agency. The cautions are vague and mild: "Exposure to inorganic arsenic may present certain hazards. Do not use treated wood under circumstances where the preservative may become a component of food or animal feed."

Nowhere is there a hint of how much arsenic is in each sack of lumber. A single 12-foot-long 2 by 6 contains more than six ounces of arsenic—enough to kill 150 adults were they to ingest it. Chromium and copper kill plants and marine life, but arsenic poisons the greatest danger to humans and many other forms of life. It has long been a staple of murder mysteries and anti-life homages. "We call it a three-

in," says Bill Harkley, a top official in the Florida environmental protection agency who has had to deal with arsenic in the ash of burned pressure-treated wood. "It can leave you dead in a doornut at high doses. It can kill you at moderate amounts over a longer period. And it's carcinogenic at low levels."

With the skyrocketing use of pressure-treated wood, 17 million pounds of arsenic is going into the backyards of America each year—nearly all of it reclaimed from copper and gold smelters in China and Chile. This presents an unsettling scenario: The United States is toxic waste dump of its poison countries. No harm is done, however, as long as the preservative remains locked in the wood. But can they keep out? And what happens when the wood becomes scrap?

In the early 1980s, the Environmental Protection Agency feared the rate at which the waste took out so right that its official statement says the product "does not pose unreasonable risks to children or adults, either from direct contact with the wood or from contact with surrounding soil." The agency exempts untreated wood from regulation, even though it classifies the preservative as a restricted preservative, available only to licensed wood preservers. George Perre, director of environmental and regulatory affairs for the American Wood Preservers Institute, is more cautious in explaining the strength of the chemical bond locking the preservatives in the wood. "Not that I'm advocating doing that, but you could basically walk on a 2-by-4 and it wouldn't cause you any harm."

Yet the issue of whether touching the wood poses a direct risk is periodically. A decade ago, state officials in California became concerned that a crime could rub off onto children climbing on playground equipment built of pressure-treated wood and required all new exposures of public playgrounds to be sealed every two years. Last year, the tabloid sensation show *Hard Copy* aired a segment showing that a handkerchief picked up arsenic when wiped on playground equipment. But public health officials took little notice. The con-

## A POISONED PASTURE

Dorey, James Peppy and Jim Jensen at Buck Rapids, Minnesota, had to replace 18 horses before after a thunderstorm spotted them even a trace and into a neighbor's farm. Jim refuted them, but they all died within four days. State investigators determined that the cows died of internal bleeding and liver failure caused by arsenic poisoning. They traced the events to ash dumped on the neighbor's land after someone burned scraps of pressure-treated wood to heat a house. Preservatives made the ash taste salty—which attracted the cows. Mike Murphy, a University of Minnesota veterinary toxicologist, found that 8 subspaces of the ash have enough arsenic to kill a 1,100-pound cow; a single tablespoonful could kill a 100-pound human. "I don't think people really understand how dangerous pressure-treated wood can be when it's burned," Murphy says.







## THE ABC'S OF ARSENIC

All of the arsenic that goes into wood in the United States comes from elsewhere, mostly as waste from refineries like this copper smelter in Huala, Arizona. (Globe, Arizona's extreme toxicity has been known for centuries. But health officials realized only recently that low levels cause cancer. Researchers tracked a Taiwanese community where 49,000 people routinely drank from arsenic-contaminated wells until 1986. Among those who had regularly consumed water with the most arsenic—some 400 parts per billion—425 cases of cancerous skin lesions had appeared by the late 1970s, a figure whose water-contaminated arsenic at less than 17 ppb had no lesions. By 1980, researchers discovered that the gray with the most arsenic also suffered more Madras, kidney, liver and lung cancers. Their and other studies prompted Congress to tell the Environmental Protection Agency to sharply reduce the arsenic level in drinking water, now 80 ppb. Proposed new limits range from 5 to 25 ppb.

concentration was so low that the U.S. Consumer Product Safety Commission found no risk of contracting skin cancer—the biggest worry about contact with the wood.

Not so easily dismissed are worries about whether the chemicals can seep out of the wood. In the late 1960s, researchers discovered that acids could reverse the chemical reactions that bind in the preservatives. At the University of Georgia's Okefenokee, two scientists soaked small cubes of the wood in a strong acid solution. Depending on its strength, the acid leached out 33 to 68 percent of the arsenic. Interestingly, a pair of researchers from the Connecticut Agricultural Experiment Station in New Haven decided in 1986 to erode under natural acids to check whether acid rain—common in the Northeast—might be having the same effect. "We had been getting a lot of calls from gardeners who were dying if they could use pressure-treated wood in their gardens," says David Silveri, the analytical chemist on the team. "We wanted to take a look at what was happening ourselves."

Silveri and a colleague, Kops Cooper, sampled soil under seven decks, ranging from four months to 13 years old, and shared their results in the Bulletin of Environmental Contamination and Toxicology last year. In all cases, they found significantly higher levels of arsenic, chromium and copper than in soil collected away from the decks. The amount of contaminants increased with the age of the decks, except for one that had been painted. The copper and chromium fell below state pollution limits, but the arsenic did not. It averaged 20 times higher than arsenic in surrounding soil. Under the second oldest deck, arsenic in some samples exceeded 300 parts per million—35 times higher than the level that would require the state Department of Environmental Protection to order a water-funnel cleanup of a commercial site.

A single study by two obscure researchers might be easily dismissed, even if published in a scientific journal. But these findings were not ignored. They have prompted many people—



At a recycling center in Johnston, R.I., 1,200 tons of junk wood cascades down a conveyor belt daily. Wasteful here, not so much in Italy, where old junk not pressure-treated passes to the rest can be safely burned in power plants to produce into fuel pellets for home furnaces.

TOP: DAVID SILVERI; BOTTOM: AP/WIDE WORLD

specifically in study leaching of wood preservatives, and several organizations are confining studies not just to Silveri's—excluding Toxicology, Environmental Systems Inc. of Oakland, California, under a contract with Home Depot, which sells more pressure-treated lumber than any retailer in the world. The study is part of Home Depot's long-term effort to continue the environmental strategy of products it sells.

Pavel Cooper, a wood science researcher at the University of New Brunswick, in Canada, and the leading expert on leaching from pressure-treated wood, says Silveri's readings were so high that they can't be dismissed as insignificant. "If I do the same logical explanation for this, I think everyone would agree you have to do something to stop that from happening," he says. Cooper says his own calculations over the past indicated average leachings levels probably wouldn't measure more than 10 ppb. But he did not factor in something that many home owners view not as truly chemical leachings. Some of these contain acidic acids, often, "nonchemically leaching" leachings are made with acids and—the same suggest that researchers at the University of Georgia used to reduce leaching in samples of pressure-treated wood. "That could be what's behind these numbers," Cooper says.

The American Wood Preservers Institute, which represents two of the three main makers of CCA and about 800 of the 375 companies that inject it into wood, says Silveri's study has found isolated pockets of contamination rather than evidence of generalized leaching. "We think he's having a problem that's left over from when the decks were finished," Evans says. "If we take away the leaching, I think everything Mr. Silveri found of arsenic would just go away."

Silveri, however, says that if leachings were so accurate for the detected levels, he would have found the preservatives in proportions like those in treated wood: 47.5 percent chromium, 34 percent arsenic, 38.5 percent copper. Under the decks, he found twice as much copper as chromium. "The amounts were consistent with leaching, not arsenic," he says.

When arsenic is added to clay soil, it tends to bind to particles in the top inch or two. Children can ingest it along with dirt on their hands, and families can eat it if it clings to root vegetables from their gardens, although the plants are unlikely to draw it enough to become poisonous. Seventh decks, it's possible that the arsenic would grow little potatoes—except perhaps with arsenic leaves when it's a case to soil. But no one really knows. Silveri sampled only on the surface under most of the decks in his study because the ground was hard. In some soil under one deck, he found high arsenic readings at depth at his probe went—7 inches.

The big risk with pressure-treated wood is that the arsenic will leach out and contaminate the groundwater, and then we will drink it," says Jerome Nriagu, an environmental chemist at the University of Michigan's School of Public Health and author of Arsenic in the Environment. Because the toxin occurs naturally in water itself, a small percentage of the nation's drinking waters already needs special treatment, says William Diamond, director of the Environmental Protection Agency's standards and risk-management division.

Patricia, the industry representative, says the preservatives haven't poisoned people. "I'm not aware of anybody ever having a demonstrable adverse reaction to CCA in the wood or in the soil," he says. "And even if there is some leaching, the vast, vast majority of the chemicals stay in the wood."

Which, in itself, poses a problem. Although the chemicals in pressure-treated wood must not and many assume, they cannot protect it from weathering—or from the changing hands of new owners. The Forest Products Laboratory estimates that pressure-treated wood will stay in use for 30 years. Stranded from service, and many lumber can be recycled, recycled or burned to produce electric power, and its ash spread on crops as a nutrient. New preservatives would. Along with other leachings of outside or old decks, at least several pounds of arsenic leach a year.

The efficient leaching of arsenic on public, old pressure-treated wood says it should be disposed of by "combustion with incineration as fuel" and never burned at street, fireplaces or residential boilers. Wood used at construction sites "may be burned in commercial or industrial incinerators or boilers in accordance with state and federal regulations," the label says. But the Environmental Protection Agency would

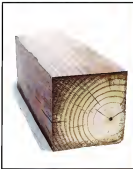
## FIRST TIMING, THEN COLLAPSE



When he built a swimming dock off his beach on West Lake near Seattle, water-leecher Rick Pavia thought he used the perfect woods.

pressure-treated. "The leachings were too high to ignore," says Pavia, who brought home a pickup load. But while cutting the wood, Pavia, then 38, felt his legs swelling. "I thought, 'My God, the swelling!'" Even his hands and feet began to throb. "The legs were going to burst!" By the time he finished the job two weeks later, his legs were numb. He collapsed just hours after putting the dock in the water. For three months, he remained partially paralyzed with no sense of feeling in his limbs. Doctors suspected a rare nervous disorder until a series of white half-moon marks appeared in his fingertips—a sign of arsenic poisoning, as is numbness. After tests at the University of Washington found a high level of arsenic in his body, doctors concluded he must have been poisoned by contact with the treated wood. One other in his family became ill. "We're never heard of another case like this," says Dr. David Mueller, who treated Pavia at the Washington Center for Environmental Medicine in Bellevue. Washington Pavia used the lumberyard, worst preservative and preservative manufacturer in 1988. They retired in 1980—advising on toxicity and leaching the amount he kept secret.

There is more than one way to pressure-treat pine as it stands in and around. The first on the left is an infused wood with a preservative free of arsenic and chromium but rich in copper as it's as green as if it were treated with the problematic original formula. The sample on the right was pressure-treated with another arsenic-free preservative. It was then surface-treated with a preservative stain intended to make it look much like cedar.



Wood preservatives could easily switch to arsenic-free formulas—using the same equipment and procedures—it companies demanded it. "It's what I've been trying to argue for years," says Douglas Hancock, president of B&B's Treated Lumber of New England, one of the Northeast's largest wood preservers.

As a hedge against any future federal or state bans on chlorinated copper arsenates, the three in-house suppliers of the preservative have developed a new generation of chemical mixes: semiconducting copper quaternary (BQ), copper azole and copper chloride. In addition, other companies have begun to protect wood without arsenic or chromium. The most heavily

promoted is Kodick Preserved Wood, made with copper dimethylphosphonates.

All of these alternatives are ready to go—the Environmental Protection Agency says they're safe, and the American Wood Preservers Association says they work. However, the association's endorsement for copper azole is limited to above-ground use; ground-contact approval is pending. The formula is common in Japan and Europe—in part because of concerns about the hazards of arsenic in traditional pressure-treated wood. The other three alternatives—AQ, copper chloride and the Kodick formula—are "fairly much one-to-one substitutes" for

arsenated-copper arsenate, says Jerome Winandy at the Forest Products Laboratory.

The new formulas cost more because they are richer in expensive copper. But wood and labor—not chemicals—are the most costly elements of wood-preserving. Moreover, says those making contact, no matter which chemicals are used, His company uses AQ to treat a small portion of its wood, and he says the finished products cost 8 percent more than standard pressure-treated wood. "It's pretty insignificant," he says.

In Glenview, Ill., Woodman, another wood preserver, Northern Crossings Co., refused to add risk factors of fees about worker

safety and its own liability. Co-owner Pat Riedel says the new wood generally costs 5 percent more than the old.

Of the alternatives, AQ is the least expensive—and most common. Only one company in California uses copper chloride, to treat Douglas fir. Kodick is the most expensive, but it includes a color stain that the other treated woods lack.

Meanwhile, still clinging out from the wood treated with a chemical recipe dating from the 1930s, says the industry could switch to the arsenic-free alternatives tomorrow. But the industry is fragmented and hard to move, he says. "There's no one to take the lead. To me, it seems, on average, no hesher to make the switch."

that statement in 1989, and reintroducing pressure-treated wood is no longer legal in any state because the dangers are too great.

Rather than destroying the arsenic, chromium and copper fire antiseptics that in the 1940s turned a small stream of the wood with other debris in enough to turn all the ash into hazardous waste, as owners of the Okaloosa and Escambia sugar mills in Pinellas County, Florida, discovered after they began running a cogeneration power plant to produce electricity as well as steam for refining sugar. Half the year, the plant burned potentially sugar cane waste as fuel, the rest of the year, it burned construction and demolition debris. The owners say pressure-treated wood accounted for less than 1 percent of what was burned. But when the ash was tested in 1993 and 1994, arsenic measured as high as 500.7 ppm. "It was just way off the scope," says Hinkley, the state environmental official. "Nobody thought that little amount of pressure-treated wood would cause a problem that big." The sugar company—suck with 30,000 acres of contaminated soil that cannot be spread on crops—faces a \$8 million landfill bill.

Because of such hazards, researchers are scrambling to find ways to extract the chemicals from scrap wood so it can be recycled safely. So far, they have not found a viable solution. Using citric acid and is too expensive, and no one wants pressure-treated fibers in paper products. In the meantime, the release of the scrap is growing. In 1993, the year's total is expected to be 467 million cubic feet—enough to build a house with 3 feet wide and 15 inches thick all the way to the moon. "And every piece of it is headed for the landfill," says Jeff Pyles, an engineer with C.T. Davidson Associates of Burlington, Vermont, which tracks markets for scrap wood.

Some home owners, unaware of the dangers, have pressure-treated wood to build their homes. In 1994, the *Journal of the American Medical Association* reported the loss of a Wisconsin family who found their house this way for four winters. Mysteriously, they lost their hair and suffered toothaches, skin rashes and extreme fatigue. "Headaches were frequent, and the joints ached and it 'bleeding' out" for periods of up to two hours followed by feelings of drowsiness. The two children had multiple seizures described as grand mal," the journal reported—all because the family inhaled arsenic-laden dust. The family's home and soil were less susceptible to arsenic, but they did anyway, victims of copper poisoning.

Despite all the concern about pressure-treated wood, there might be some justification for using arsenic- or chromium-treated copper arsenate as the only for now available. But after copper arsenate, and some are just as effective.

The most common is a compound known as AQ, made by Chem-Lab Chemical Specialties Inc. of Charlotte, North Carolina. The company, which also makes about a third of all CCA sold, has had little success selling the safer alternative, says Tom Bailey, the company's marketing manager. Although wood with AQ costs as little as 5 percent more than standard pressure-treated lumber, that is a big enough premium to prevent most customers from making it, Bailey says. "Unfortunately the choice is not one to make. The market is being driven by utilities, and these utilities are under more pressure than they've ever been."

But the risk pays off in other ways. "It being kind, easy and safe," Bailey says. "In my quiet moments, I feel better about offering AQ than CCA," Bailey says. "In my quiet moments, I feel better about offering AQ than CCA," Bailey says. "In my quiet moments, I feel better about offering AQ than CCA," Bailey says.

## WHAT'S UNDER YOUR DECK?

Home owners can find out how much arsenic is under their decks for about \$80. The procedure is simple: Dig a handful of arsenic soil from 16 points under a deck and ask the soil in a plastic container. Put soil from other parts of the yard in a separate container. Label both sides and take or mail them to an environmental laboratory. "Any local public health department should be able to direct you to one," says Terry Reginald of Ecology and Environment Inc., a laboratory in Buffalo, N.Y., that accepts samples by mail from anywhere in the country. It charges \$80 for arsenic readings and \$15 each for readings of copper and chromium.

## USE WITH CAUTION

Home owners concerned about potential problems from pressure-treated wood face difficult problems. "Nipping out an existing deck just because it's there is costly—in light of the growing waste problem—nonproductive in protecting the environment. It makes more sense to seal the wood regularly with a moisture repellent. Paul Cooper of the University of New Brunswick, in Canada, says doing this will help keep the toxic chemicals; manufacturers say it will also prolong the life of the wood."

As to future projects, the first step is to ask which wood is best for the specific situation. On the ground, ordinary pine works fine for vertical features such as balustrades, especially if it's treated with a water-repellent and then painted or stained. For decks, cedar and redwood look better than pressure-treated wood but cost more. In the garden, the best solution may be to chip wood altogether, deposit rate just on soil in a composting pile or to use it in a box. (Cooper built a compost bin of pressure-treated wood and discovered that acids in the compost doubled leaching from the wood.)

Where bins depend on rain-free exposure—such as porches and fencing under decks—pressure-treated wood still makes sense. The reason: however, go beyond it. The Environmental Protection Agency says and Workers should "wear" thoroughly before use, including, the agency's instructions on work to be treated: separate the American Wood P recommends sealing it can be sealed up along from in the back. "It common sense," Paul

Tom Silva, general contractor for *Tile & More*, has been using pressure-treated wood for years. "For sills and posts, it's necessary evil," he says. "You test it before using it in a building or standing on a deck that is not being touched by you."

He recommends using pressure-treated wood for all structural parts and posts installed in a small space to give extra support to floor joists. "A wood post could rot," Tom says. "With a pressure-treated post, the worry is gone."

## TO BUILD A FENCE

FIRST, DIG SOME HOLES

Fence builder Danny King stands just a few steps from the end of a dark, dank, 40-foot-long tunnel under a dense maple, 1987, in his 100-year-old house of panels and posts to follow a line of maple, built-in place back. Gathering screws, 1/2-inch-diameter white cedar and 1/2-inch-diameter acrylic white will help the fence panels for 30 years or more.

At one end of the garden, the remains of a 40-foot tunnel from the house are exposed. A fence crew is working on the remains of the tunnel. The main supporting the fence panels are shown here and not at the house.

In Lynn Hippeau's peaceful backyard in New Canaan, Connecticut, the scene was anything but. Landscapers wrestled 12-foot-tall evergreens from a truck and dodged a growling skid-steer loader, pallets of bluestone and piles of crushed rock. A fencing crew lugged six-by-six cedar posts, seven-by-four V-grooved board sections and seven-by-two panels of lattice to the edges of the yard, where workers dug holes.

BY DEBRAH KAHN PHOTOGRAPHS BY KATH SMITH

minced only, tamped soil and pruned posts with sledgemoor.

Only 12 hours after the chain trapped, a fence around Hopper's 3,000-square-foot backyard was already half finished—40 feet of brilliant white against brown earth and green shrubs. A plot that had once been a dull patch of grass was rapidly becoming a refuge.

"What you're seeing for in any fenced garden is a sense, color, form," says landscape architect Mass Schwartz. That is exactly the effect Hopper asked Schwartz to design. The architect suggested arranging the yard into "garden rooms". Hopper wanted to follow principles of Feng shui, an ancient Chinese philosophy of placement. "It's not fence-post, just good design," Hopper says.

Schwartz highlighted each room's area with fencing of fence and solid boards. He specified fence panels that went from post top to post bottom and that overlapped to match the edge of a nearby pool. A ledge of close-meshed screening provided privacy. The rest of the 6-foot-high fence would be mostly solid panels of grooved clasp boards topped with 2 feet of square lattice. In the center of the fence's longest side, marking the attempt of the garden, Schwartz threw in another curve, a graceful lapland arch atop a panel of solid boards. He finished this centerpiece with screens, all-lattice plants punctuated with an oval-framed window. Ring that made, the first fence looked anything but Chinese and could have complemented any Victorian's backyard.

To project manager Robert Booth and his crew, success of design hardly mattered. They were there to build—fast and well. Long before the first hole was dug, Booth had turned on the project by measuring the fence line and marking off the post centers and gates. He determined these dimensions, along with Schwartz's plans, to Walpole Woodworkers in Walpole, Massachusetts. Six weeks later, 27 posts, 24 panels and two gates arrived on a flatbed truck.

Like all Walpole Woodworkers fences, this one was milled from southern white oak, which naturally resists rot. The shiplapped boards between posts are 1/2 inch thick; the lattice is 3/8 inch thick, not the 1/2 inch thick variety usually found at home centers. Roundtop stainless-steel staples secure each lattice crossing. All other nails and screws are galvanized. Before delivery, each piece of wood is coated with solid acrylic latex stain.

When Booth and his crew first arrived at the site, they stretched a marker line along the ground and staked off the corners of the post holes. Then they started digging. On most jobs, the crew excavates with muscle-powered shovels, less disturbing to the soil and the user than gas-powered augurs. "We do it so fast and with so little fuss—people think our fences were dropped out of the sky," Booth says. He'll call in a dual motor loader with a hydraulic auger if the soil is too hard or rocky, but in Hopper's sandy soil the digging was easy. The shovels, pivoting 45-degree shovels they used reached the recommended 34-inch depth for 6-foot posts at minimum. (Posts 8 feet tall need 42-inch holes.) The loader dug the "dropped out of the sky" ditches, the owner dugged their spots once coarse ground dried to speed removal. "It's a lot easier to pick dirt up than pick it out," says crew member David Glidstone.

Tipped off a worker's shoulder, the first 40-pound post thudded into a hole. Then the post was ported upright against the owner's line, planked with a 24-inch-long level and backfilled with the sandy excavated dirt. Every 2 or 3 inches, a heavy steel tapping bar packed the fill evenly against the post. In most soils, Booth says, a thorough tapping anchors a post as effectively as a concrete collar does, and tapping is better for the mood. The crew almost never uses posts or concrete because water trapped between wood and concrete beneath soil and air heats the concrete if it freezes. The weakest point is where concrete holds the bottom of a hole isn't deep enough to hold a post securely.

The next step is to attach the grooved board panel to the post. Paired wedges, 1/4 inches



David Glidstone shows traditional post-hole digging, which looks like ground dugged with a spade. The Cable Digger has a blade that rotates from vertical to horizontal with the flip of a wrist lever. Constant digging and sharpening wear the blade in a rich every new month.



An iron tapping bar pounds the soil tightly around the post while it is held plumb. Forces only make the first fence-post packing. About the only force that will lift a well set post is a post frame. The fence company's emergency service provides for a return visit to correct such problems.

We master how good the raw materials, a fence set of plants or diggers with the wrong kind of attention to detail. Tight lines, exact corner-cuts and deep post holes are essential for a good installation. In soil covered with a surface of new dirt for 24 hours, on wet clay, not more water is too late or right. Fortunately this type of installation makes post replacement easy. A final inspection at the end, the post is replaced and the two are finished.



square and 18 inches long, hold the panel a few inches above the ground as the crew latches one end to the post with three 3/8-inch galvanized wood screws. As the panel hangs from the post like a stiff flag, the crew post is dropped into a hole, snugged up to the string and the panel, planed and tamped. The foreman, Mike Shadock, checks that the panel is level, adjusts the wedges and checks again before securing the other end of the panel to the post. Like a train standing a plaid along a track, Shadock makes certain the lattice pattern on each adjacent panel lines up before attaching the lattice tops, which hang over the grooved board panels, to the posts. Gladstone follows behind each completed section, nailing in ornamental post caps and brushing on a touch-up coat of stain.

Even for a fence with as many different elements as this one has, installation is essentially the same basic sequence—dig a post, attach a panel, dig a post, attach a panel—over and over. The crew's skill shows when conditions at Wiggan's property call for a little improvising. For instance, when the panels over-ride at different heights because of sloping terrain, workers tack the lattice top up before installing the boards to ensure that at least one horizontal strip aligns with its neighbor. When they discover that shrubs are placed less than a foot from the fence, they rearrange the post holes to avoid damaging root balls. When a post is bowed, they purposely cut it so it bends away from the panel. Then they tuck a tie-down strap similar to those used by truckers and loop it to the nearest post. A few cracks in the rough timber drive the offending timber upright for long enough to secure the panel home.

As the afternoon light wanes, the crew packs up its tools. Shadock steps back to assess the day's progress. He counts 17 newly set panels. Although a three-man crew can often place 15 to 20 panels in a day, 13 is a lot given the difficulties of this site. Shadock is pleased to see it solid from something that had only seemed so to his client's eye. Two days ago, there was nothing but dirt and despair. Now, with the crisp walls ceding the yard, a wistful smile lingers. And for him there is a surprise. The curving white lattice set against the dark-green screen of arbutus makes the small backyard look more expansive. "That's an idea I'm going to steal for my future projects," he says. ■



In a modest Wiggan yard, there, some 4,000 yards of two-length white cedar are stored, stacked and graded each year. Large logs become square posts, smaller ones become rails and the smallest go through the gang edger, which rips them into evened pickets at a pace.

A machine similar to a giant pencil sharpener gives pickets their finished points. Two trips through the twin saw, above, turn a log into a post. The vintage 1932 four-cylinder planer, a screaming 17-hp beast powered by seven belts, smooths any stock up to 18 inches thick and 18 inches wide. Perhaps the most ingenious machine is the scarifier over its belt-shaped beds, like the disk of a farmer's harrow, ratings in an arc, cutting rail ends so that they look as though they were formed with an adze. After milling, the final grinding is performed. The Chester mill ships only number-one stock to the cedar factory in Wiggan, Massachusetts, which then assembles and paints the fences. "Wiggan's installation crews don't have to worry about hiding the bad side of a fence board," says mill manager Bob Hayes. "And you don't make bad neighbors."

Snapping on a post with a 3/8-inch strap allows faster packing. The crew—shown in this view as the foreman—up also snags for double panels, at Mike Shadock and Gladstone (inset photo), Shadock that comes to several feet in length. The inset photo is a completely different scene.



PHOTOGRAPH BY SHUTTERSTOCK.COM

## Made in Maine

At the Wiggan Woodworkers mill in Chester, a tiny village on the fringe of Maine's vast North Woods, fence posts begin their journey to suburban estates as linkless tree trunks.



Like no perfect bar for an elegant oak, a post cap completes a fence's appearance as it sheds water away from vulnerable joints. This cap is cedar, but also in copper and silver which work well too.



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church house

Can a San Francisco couple translate retail fashion sense into a temple of style?

Having lived in cramped New York City studios and a bright, airy apartment in the Pacific Heights district of San Francisco, Mark Dvorak and Laurie Ann Bishop wanted something new when they got married. They looked for a loft: rough, industrial and huge, a great canvas on which to express themselves. Both are in the fashion business; Dvorak designs stores for the Gap, and Bishop, a perfect size 8, is a fit model, ensuring that the Gap clothing is properly proportioned. And they have strong tastes. The new place had to be able to accommodate not only children but also the couple's well-traveled collection of fine-artistic erotica. "I like minkies and ensembles that

[illegible]

are one member's hubbly," Dvorkin says. To their New York-eyed, disoriented eyes, the looks in San Francisco seemed genuine and unexploited. Lefties. "They were glorified apertures," Dvorkin says. "They had a forced intellectual look, a phronesis." They weren't always in the safest houses either.

They're here Bishop and Dvorkin ended up in the Pacific Valley neighborhood with what had been a postindustrial gay and lesbian temple. (Its growing congregation had moved on to a renovated former home.) The holy site's old structure was originally built for the Reorganized Church of Jesus Christ of Latter Day Saints shortly after the devastating 1906 earth quake. The building has 4,000 square feet of floor space including a bell tower, a second-story mezzanine of offices and, downstairs, a gleaming Gothic windowed sanctuary and a big, ugly kitchen behind the altar.

"We got a hellfire space with the safety of a residential neighborhood," Dvorkin says. "I thought, 'Perfect. Leave the downstairs alone, have a huge kitchen, a huge living room—that's the life we wanted. Then.' " And Bishop finishes "...make the upstairs home."

So, confessing Bishop's facade, since with Dvorkin's gift for designing large spaces and aided by residential architect Barbara Chubb and the crew of *The Old House*, the couple determined to make a church a home.

"We had to find a constant concept, a focus," Dvorkin says. "It was hard because we love so many styles, and there's nothing more boring than, say, a Victorian house with Victorian furniture."

He started a sketchbook. Keep the sanctuary, now the living room, pretty much the same. (The pews were gone, having followed the congregation.) Tear out the bulky carpet, and stain the wood floor dark brown. Replace the Gothic window's cheap-looking stained glass with three panes to let in the sunshine, and share the big room even more by painting the dark chest-high wainscoting a light color. Penetrate the recessed lighting with a few unique fixtures. And create a new focal point by replacing the altar with a painted study table and fireplace with a 6-foot-tall chess mural. They planned to put a piano for Bishop in one corner, while Dvorkin, a jazz-loving amateur saxophone player (famed phantasies of Miles Davis, Duke Ellington and Charlie Parker imbued the couple's apartment walls), looked forward to presiding again after 15 years of apartment life.

Dvorkin has plenty of expensive going (large rental spaces the Gap looks—wood floors, white walls, bright light)—but who wants to live in a store? Or for that matter, a church? And this wasn't an actual loft, so why try to make it look like one? Besides, there

was an escaping the church's unsanctioned items, especially in the kitchen's room 15 by 20 feet with a 14-foot ceiling, close to the cheap with a 1950s kitchen tile floor and green lacquer cabinets edged with chrome—on an essentially surface racism in which they could almost smell the chalk and sawed cutlery.

Gazing at the room, Dvorkin remembered some refrigerator handles he had salvaged in a restaurant supply store in the Bronx in New York. And Bishop thought of the salt gray Carrera marble and dark-wood walls one would see in a "train station bathroom." These elements inspired a theme: "Industrial," Dvorkin says. "Not a 1920s schoolhouse."

At the look crystallized, it included a mosaic pattern tile floor, a chrome-plated refrigerator, an 11-foot bar with a black painted cabinet, chrome hardware, a stainless steel foot rail. A north wall, 23 feet long and 14 high, of white cabinets, their doors covered with the refrigerator handles. A rolling library ladder on a track and a 4-by-8-foot blackboard with a billiard style light. "The board will be used for phone numbers, lists and reminders," Dvorkin says.

He sketched his ideas on the sketchbook for months and as carpenters began to mill pondering the perfect bar stool. "Not a '70s diner stool—too flimsy. Something sturdy that looks to the floor and feels permanent, like something from a shop," he

insisted. "Maybe I'll design them and have them made."

In a Berkeley salvage yard, they found the vintage Carrera marble for the bar for \$400 and two 8-inch-deep, brass flycatcher porcelain laundry sinks in excellent condition for \$400. "Unbelievable," Bishop says—and very institutional.

If anything could stamp a sense of humanity on the sanctuary's yawning space, the couple's eclectic possessions had a chance: African three-legged stools, 8-foot sofas from Paris and London, a coffee table converted to a television table. "We'd never do that at the Gap," Dvorkin smiles. When he designs for his employees, Dvorkin has to stick to the corporate idiom. "The idea is to make the a relationship support the brand and the marketing rather than the other way around," he says.

Still, the design can't help being influenced by his work. For the exterior paint, Dvorkin and Bishop were leaning toward what with black iron, but a curtain light tin was tempting him. The shade he had in mind felt as familiar as a pair of old khakis—and in fact was the color of a pair he eventually brought home from the Gap to use as a color chip, holding them up against the sunny rear wall for Bishop's approval. ■



Lucie Ann Bishop and Mark Dvorkin from the next church sanctuary with a billiard living room, replacing the altar with a fireplace and study area.



Better than trying to reuse the kitchen's unsanctioned features, Dvorkin plays it up with industrial and refrigerator handles on all 30 of the cabinets.

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## DRIVEWAY PAVERS



TOP: The Apurimac Way, a 320-mile road built with interlocking stone blocks, runs the spine of the Peruvian Empire. Most of the original road is still intact, including the rafters of stone blocks laid in 1510 BC at the Apurimac site in Peru. RIGHT: The modern driveway of a Georgian-style guest house in Pittsburgh features a colorful array of 10-colored diamond concrete pavers.

BY CYNTHIA SARKZ STILL LIVES BY JAMES WOODRILL ILLUSTRATIONS BY MARK ROSENBERG

Long and winding or short and steep, a driveway is a house's welcome mat. And for a growing number of home owners, the best way to say "Come in" is not with traditional concrete or asphalt but with a rich mosaic of interlocking pavers. "We've made our lawns, gardens and entrance design elements in our homes. Why not our driveways?" says David R. Smith, director of the Interlocking Concrete Pavement Institute. "Driveways are becoming a medium for telling the person that paves by something about the person within."

Although clay brick and natural stone also share the paver market, the most popular choice is concrete, which comes in a surprisingly wide range of colors, shapes and sizes. Even better, concrete pavers are so sturdy as they are stylish. Because they're set in a bed of sand, pavers can move as the ground freezes and thaws, so they don't crack like poured concrete. Unlike asphalt, they don't have to be sealed and then ressealed every couple of years. And if individual pavers do become cracked or broken, they can be removed and replaced without leaving ugly patches.

Not surprisingly, the price tag for installed pavers is equally impressive, averaging two to three times the cost of asphalt and as much as twice the cost of poured concrete. (A typical paver driveway 40 by 10 feet can run about \$4,000.) But for many people, the aesthetic value alone justifies the extra cost. When laid out in a traditional herringbone or basket-weave pattern—or whatever design a home owner imagines—pavers can create memorable results. "I've been through neighborhoods where every driveway is done in concrete to pavers, but every driveway is different," says Smith. "It becomes a canvas for individual expression."



## PAVER PREP



The key to beautiful blocks is beautiful bedding. Inconsistently installed pavers can shift or pop out of position, ruining their look and preventing a trapping instead. With a proper base, the new driveway should remain in place for decades. A foot or so below a concrete pour, dense sand that has been compacted using a flat plate vibrator. Next should be 6 to 12 inches of crushed stone (the depth is determined by the condition of the underlying soil, the climate and the anticipated traffic load) that must also be compacted. The crushed stone is covered by 1 to 1 1/2 inches of coarse bedding sand into which the pavers are laid in the desired design and pressed in place by the flat-plate vibrator. Additional sand is swept between the pavers. One final round of compacting compresses the sand evenly in the joints, which allows the joints to spread vertical loads horizontally so that the weight of vehicles is diffused over the entire driveway edge restraints—typically made of plastic, metal, poured concrete or stone—line the sides of the drive and hold the entire system in place. "The edge restraints are crucial," says Donna DeNiro, marketing director of the national paver installers association Uni Group USA. "They maintain the pattern design and proper joint spacing and help ensure the pavers will not creep apart."

## EXTRA TEXTURE

Accent pavers can add visual surprise to a patterned driveway. Star-shaped pavers, cut into pieces of Applachian stone 200 million to 300 million years old, have a Celtic look. The raised buttons on a clay border brick set off the smooth bricks around them and can serve as a tactile warning for the handicapped. And a concrete paver's face granitic look is remarkably similar to the real thing at a third of the cost.



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TULIP  
13 1/2 x 13 1/2 in., 40 lbs.



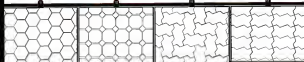
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SAND PLATE  
11 1/2 x 13 1/2 in., 37 1/2 lbs.



3  
BETHLEHEM  
15 1/2 x 12 1/2 x 2 1/2 in., 25 lbs.



4  
WILLOW  
13 1/2 x 13 1/2 in., 23 1/2 lbs.





1  
BLIND  
6 1/2" x 2 1/2" x 1 1/2" h



2  
TUSCAN  
8 1/2" x 8 1/2" x 1 1/2" h



3  
AVAIL  
7 1/2" x 6 1/2" x 1 1/2" h



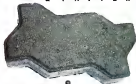
4  
ANGLED L  
8 1/2" x 8 1/2" x 1 1/2" h



5  
PETAL  
5 1/2" x 6 1/2" x 1 1/2" h



6  
ORANGE CORNER  
7 1/2" x 2 1/2" x 1 1/2" h



7  
BOW TIE  
6 1/2" x 6 1/2" x 1 1/2" h



8  
CRENSHAW  
5 1/2" x 6 1/2" x 1 1/2" h



9  
OVERSEASIDE HALL  
5 1/2" x 6 1/2" x 1 1/2" h



10  
WIDE L  
12" x 12" x 1 1/2" h

# CONCRETE PAVERS & PATTERNS

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#### STARTER KIT

What are the first tools someone who is starting out doing home projects should get? Do you have some kind of shopping list for the novice?

Bob Kroszka, New York, N.Y.

If you're talking about do-it-yourself repairs rather than woodworking projects, I'd suggest starting with a 7 1/2-inch circular saw and a good electric drill with a 1/2-inch chuck. If you're going to do any serious amount of work, the drill should be corded rather than cordless. Then add a good random-orbit sander for refinishing work. After that, get a figure or buyout saw. To get the most out of the tools, be sure to buy top-quality bits, blades and sandpaper (the break-and-tear kind, which is user-friendly, not the roller-are-broken, which isn't).

#### PANES-TAKING WORK

I'm an aspiring author-houser, and I'm curious whether I can build my own windows and doors to fit the irregular and large openings between rafters. What kinds of wood are typically used? What about double-pane windows?

Justin Rietten, San Jose, Calif.

Every handmade window I've seen has sealed, floating windows and window frames in an engineering as well as a well-work job. Doing it yourself is definitely not a way to save either time or money.

#### HAND-NE-DOWS BASEMENT

We got a great price on an old farmhouse with 40 acres in a prime suburb of Duluth, and we plan to stay there for years. The problem is our wet and smelly basement. It was hand-dug, and the walls were poured one wheelbarrowful of cement at a time by the farmer who built it. The floor is bedrock, and in one corner a boulder sticks up that the farmer obviously couldn't move. My husband wants to redo the whole basement. I think we can save money by just waterproofing it. What do you think we should do?

Shirley Thompson, Honesdale, Mass.

# ASK NORM

"If you want a dry basement,  
first check your grading."



A foundation doesn't have to be waterproof to hold a house up, but dampness can damage the wood structure. If you want a dry basement, first check that your grading slopes sufficiently to carry water away from the house. Poor grading is an especially common problem for porches, and it's simple and relatively inexpensive to fix. If the grading is OK, the next option is to repair the foundation with hydraulic cement. Block new concrete forms poured in cement, it begins to cure. By the time the job is done, pouring another batch, the earlier one had hardened just enough so that the two batches couldn't bond. The result: a cracked and leaky foundation composed of large cement blocks. Chisel out the seams, and apply hydraulic cement between these blocks.

#### PROBLEMS UNDERFOOT

Our family moved into a wonderful 1929 Arts and Crafts home a year ago, and we are trying to decide what to do about the flooring in the kitchen and bath. The original ceramic tiles have cracked because of settling. Once the floor is leveled, would you use tile, wood (all our other floors are maple) or period look linoleum (if there is such a thing)? We want a floor appropriate to the period.

Karen Brown, Timboon, S.D.

The big question is: What's under the tiles? Your floor was probably a "mud job" laid in a bed of mortar about 2 1/2 inches thick. That's a high-quality technique still used today. The bad news is that the structure of the floor was inadequate or the bed of mortar cracked when the house settled, and now the mortar will all have to come out. The floor frame should be made structurally sound and flat, not necessarily level. Then you have a number of options. The simplest is a wood floor; it will match your other floors and can be installed over a 1/2-inch plywood subfloor. If you go with tile, you can either start with a mud job or put down the plywood, followed by a layer of cement board. For old-fashioned linoleum, which is tough to find but easy to install at some specialty centers, you again start with the plywood subfloor; but this time you add the underlay (1/4-inch soft-foam ply) on top. Then you'll have to fill the underlay's seams so they won't show through the linoleum.



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For more on the Dream Home, watch HGTV's Coastal Dream Home special!

Premieres February 22nd at 9 pm EST/PT. Check local listings for additional dates and times, and see the special Dream Home feature in the May '04 issue of Coastal Living magazine.

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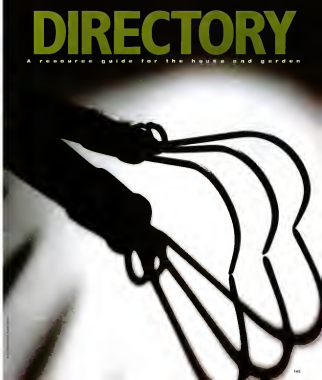
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# DIRECTORY

A resource guide for the house and garden



### Back in the USA

The crew returns from England to start an all-American project

**Week 33 (March 7-8)**  
After a storm in your home in  
Humboldt County, California, Steve  
returns to Fairbridge Place to review  
the furniture that will occupy it  
above new space in the upstairs  
bedroom. Steve is the "unofficial junk  
Treasurer" and the high-level  
control for the show. **Watch and  
Learn:** Using English pipe smoking  
devices.



Exploring a top section of the Fendrobidge Floor building's five-flight communal staircase is one of the few relatively uncomplicated aspects of the London project.

**Weeks 28 (October 14-18):** In the first week in London, the creation of the unprecedented joint Conference shows off the unity of 11 global Green 100 top executives. **Weeks 29-30** involve a series of

**Mass. v. (March 21-22)**  
While starting the new season's major. Some rain in the Grinnell case in Westport, Massachusetts from the rainheads in Lexington Massachusetts to meet Brian and Brian, owners of a camped 1000 with house that needs expanding and remodeling. The budget.

**Week 2 (March 28-29)**  
 At his office in Gossner's Building, Gossner proposed that the Gossner and Gossner Foundation (Gossner Foundation) provide a new style of insulated concrete foundation system. Plotted on a graph (shown), the Gossner Foundation system is the most efficient. The Gossner Foundation is a new style of insulated concrete foundation system. Plotted on a graph (shown), the Gossner Foundation is the most efficient. The Gossner Foundation is a new style of insulated concrete foundation system. Plotted on a graph (shown), the Gossner Foundation is the most efficient.

Week 2 (April 4-11)  
 Life drawings and a model of the

house. Oshesh-Gund reviews the preliminary plans. Tom and Nore use a computer program to figure out material and labor costs for the project. Then they start a building permit. Meanwhile, Steve journeys to London to see the legend. Apartment near complete. **We built a house.** We got someone ready to invest.

**Week 4 (April 11-12)**  
As the types move their possessions out of the house before the postal demolition, the crew races for the heavy work. With a giant hole already dug in the back of the house, founder Ben conductor Earl Lewis shows them the crucial materials for the West. Of Massachusetts through the basement's 12-inch concrete walls. **\$6,000 and 10 days.** Excavating without disturbing underground pipes.

**Week 6 (April 18-19)**  
 Spend a day on the newly defined site  
 intensive foundation shaping system used for the Lexington Market. Making  
 space for the heavy equipment to pass  
 through the yard. install 100 three  
 foot precast-casting slabs as large  
 as possible. There needs the ability  
 of the newly poured foundation walls

**Handle and trim.** Hinging the services with a single pass

**Week 4 (April 26-30)**  
Architect Sirinichai found eleven  
murder of his projects. He also  
donated about 100,000 Baht, which  
he converted his luxury apartments.  
Back in the poor property, it had of  
London has moved and home

Asphalt is a sticky substance so understanding it like it is, in terms of space, weight and heat, is applying protective measures.



Stone spans in Miami County, New York, date to the 1790s and are part of the expansion of a distinctly American structure—a 19th-century bridge in use in Lexington, near Boston.

Because of space limitations, only Eric Clapton's "Classical" appears in this list. For complete list - including names of other top 100 artists, visit [www.rollingstone.com](http://www.rollingstone.com).

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\*Address correspondence to David W. Carlson.

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## DIRECTORY

### EXTRAS pp. 24-29



**p. 24—Gasket a Break:** The International Gasket Association, 1790 Lindenhill Dr., Loveland, OH 43040. A \$15 annual membership includes three issues of their journal. For details about 1998 swaps, call Peggy French at 513-687-4192. In addition to the May 2 event in Pueblo, Colo., there are swaps scheduled for July 18 in Porterville, Pa., and Sept. 19 in Tulsa, Okla. Jim Gasson (1200 N. Edwards, Wichita, KS 67203) answers questions about the history of gaskets. A Gasket Collector's Homepage is at [www.gaskets.net/~stevens/](http://www.gaskets.net/~stevens/). Reported by *James Hulse*.

**p. 25—Full Sail Aloft:** Charles Doyle, 46 Fox Lane E., Jerry Brown Farm Rd., Watfield, RI 02875, 401-785-1798. Prices for his commemorative weather vanes have ranged from \$5,500 to \$16,700. Reported by *Robert Kowalski*.

**p. 26—Quartz Craft:** Grimes Inc., 1045 Montrose North, Thaxton Mines, Quebec, Canada G6G 5T1, 1-800-667-1662. In the United States, distributed exclusively by Walker & Zanger Inc., 4810 Westchester Marble and Granite, 31 Wines Place, Mt. Vernon, NY 10558, 914-647-1000. Reported by *Thomas Jellier*. The Triangle Shade A Square Co., 548-89, Essex Inc., Box 349, Kenney, NJ 07044-0349, 201-327-1515. Reported by *Carol Kay*. Take This Job—Please Reader requested in making a distinction as the business restoration project should contact Don Berry, City of Tulsa Administrative, Box 5, Tulsa, OK 74124, 918-776-5411. Reported by *Roberta Krenner*. The Drill Team & Nuts

and Bolts Wheel 771, 3-in. diam., \$1.45, Drex Products, 200 Sewall Ave., Union, NY 11551, 800-378-1516. 6 Drex under M-790, Wre. diameter, 1-1/4, long, \$4.95, Black & Decker, 701 E. Joppe Rd., Towson, MD 21286, 800-344-8966. C. Gasson gets answers wheel 921-3428, 2 in. diam., \$2.10, Feller Tool Corp., 242 Bradenton Ave., Dublin, OH 43017, 800-363-8133. D. The following description applies to a product similar to, but not exactly like the one pictured in the story. Cylindrical flat end rotary file 4231A124, 3/8 in. diam., \$13.20, McMaster-Carr Supply Co., Box 440, New Brunswick, NJ 07963, 732-529-3200. E. The following description applies to a product similar to but not exactly like the one pictured in the story. Rotary power and rope 4227533, 3/8 in. diam., \$4.51, McMaster-Carr Supply Co. F. The following description applies to a product similar to but not exactly like the one pictured in the story. Conical rope 2531, 1/2-in. diam., \$1.89-5.2, Wellysoft Inc., 1222 W. Ardmore Ave., Box 687, Itasca, IL 60143, 630-771-6777. G. The following description applies to a product similar to but not exactly like the one pictured in the story. Conical rope 1421, 2-in. diam., \$2.39-45, Wellysoft Inc. H. Nylon bag wind, 782, 41-in. diameter, \$6.81, Drex Products, 800-378-1516. Reported by *Mark Foster*. p. 27—Swank Tanks: Red, blue, green and black colors, \$46.50, yellow suspension, \$51.35, William H. Kishman Inc., Kishman, Ont., Canada. US distributor: Robert S. Drutley, Best Oak Run, Westport, MA 02790, 800-321-0181. Reported by *Thomas O'Brien*. Soap Happy: Thirty-piece box \$39.95, 16 piece box \$49.95, Tree Molds, 21111 Mulholland Dr., Woodland Hills, CA 91364, 800-975-4960. Reported by *William Merano*. Great Wisconsin Available in 32 in. and 36-in. lengths, 6, 9, 12 and 24 in. paul-walrus, oak, maple and cherry veneers, stained-pine, birch pine and headboard styles, \$7-107 per sq. ft., New England Classic Interiors, 100 Middle St., Portland, ME 04101, 800-880-6324, [www.newenglandinteriors.com](http://www.newenglandinteriors.com).

**p. 28—Skilled and Careful:** Project Bully Work Platform 1954, 1299, Werner Ladder Co., 93 Water Rd., Centerville,

PA 16125, 412-338-1680. Reported by *Sarah Shry*. Wauling Jr. Despatch Corp., Box 5703, Sea Mar, CA 94482, 800-227-4391.

**p. 29—Have a Nice Day:** Torquane and 6 in. high Torquane Jr. \$28, Spectrum Products, 4200-351 Atlantic Ave., Raleigh, NC 27604, 800-800-7395.

Reported by *Sarah Shry*. All the Wright Angles: Rock are designed for Windows and Microsoft. Front Lloyd Wright's Fellowship featuring "Photo Bubble" IPX technology, \$39, Commerce Inc., known named Interactive Pictures Corp., 1009 Commerce Pl. Dr., Suite 100, Oak Ridge, TN 37930, 800-935-6664. The Front Lloyd Wright Companion, \$60, Force Multimedia Inc., 788-313-0978. Reported by *Leanne Fisher Kester*.

**Pilgrims' Progress:** Pilgrims' Progress is an event, 16 in. Plymouth, MA, 188-746-1632, Internet address: [www.pilgrims.org](http://www.pilgrims.org). Reported by *R. K.*

### SLOT MACHINES pp. 31-32



Tied in opening and looking photo 12942 3K, \$316, DeWitt Industrial Tools, 701 E. Joppe Rd., Towson, MD 21286, 800-433-8328. Gold Standard: Top 18, \$399, Lumina, imported by Colonial Sew Co., 300 Providence St., Box A, Kingston, MA 02364, 800-252-0335. Swish Elder: 337, \$400, Porter-Cable, Box 3644, Jackson, TN 38302, 800-457-8663. Low Dower 376, \$421, Matrix Corp. of America, 14933 Northern St., La Mesa, CA 92048, 714-323-8888. Up Right 336, \$243, Porter-Cable. No Cord Dynamic, \$625, Lumina. Compact DR38, \$79, Ryobi America Corp., 5281 Fanning Dairy Rd., Anderson, SC 29625, 800-535-2579. Bounce: Red plastic clamping hook, \$18, 15x130, \$63 per 250, Lumina, imported by Colonial Sew Co. 1. Wood house: \$4, 140055, \$83 per

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## DIRECTORY

1808, Lantella. 2. Tree wood beams: R 2, \$7.90 per 100, Rybo Associates Corp., 5201 Business Dairy Rd., Anderson, SC 29625, 800.525-2579. 3. Round wood beams: 14811, \$69 per 1000, Lantella. 4. Standard No. 22, Lantella, \$43 per 1000. 5. Decking boards: E8-TY, \$10 per 100, Box 414, Cullen, NJ 07830, 800.434-3287. 6. Clamping beams: R-20 148100, \$45 per 250, Lantella. 7. Interlocking aluminum plow: 148110, \$45 per 90 pieces, Lantella. 8. Plastic beams: C 20 148110, \$15 per 250, Lantella. 9. Beam huggers: 148003, \$61 per 10 pieces, Lantella.

### THE SCOOP ON SCRAPERS

pp. 37-40



**Pushers:** 1. One end-a-half in. Ego 2000, 6203, \$63.1, Red Devil. 2. Three-in. heavy duty back-off scraper: 25000, \$6.38, Goodell. 3. Safety glass scraper with five blades, \$2.19, Allway, Box 777, Bates, NY 10462 0354; 718-752-3636. 4. Four-in. wide and five scrapers, 89-40, Allway. 5. Three-in. flat per grip 674, \$11.13, Wholes, 13815 Industrial Park Dr., Minneapolis, MN 55441; 800-444-3606. 6. One end-a-half in. Tilt Job scrapers, 4382, \$4.35, Red Devil.

**Pullers:** 1. Pro-Pop 56200 handle with one blade, \$9.55; painted with concrete blade, \$6.85, Pacific Heavy Center; 800.229-2233. 2. One-and-a-half in. 4-edge point scraper with knob 23632, \$5.99, Goodell Inc., 9440 Science Center Dr., Minneapolis, MN 55428, 800-842-3906. 3. Triangle molding scraper 18400, \$15.50, Hyde, 800.572-4933. 4. Two-and-a-half in. double-edged "Ego-on" scraper, 3030WD, \$1.74, Red Devil, 2400 Marshall Rd., Union, NJ 07081-1033, 800.423-3845. 5 and 6. One-in. carbide blade scraper 44, \$15.70; and 2-in. carbide scrapers, 448, \$17.70, Sandvik, Box 2336, Scarsdale, PA 10583; 800-628-9893.

### PANE RELIEF

pp. 43-48



Fiberglass reinforced splinter: Mosaic, \$25.60 per 3-in.-by-

109-in. roll, Fiberglass Corp., 300 Industrial Dr., Ferndale, NY 89488, 800.773.4777. **Masonry expansion beam:** Trench's Fast, Convenience Products, 844 Haven Dr., Fulton, MO 63106, 800.325-6180. **Replacement windows:** Marvin Windows, Box 100, Weymouth, MN 56763, 800.346.5044. **Asphalt-saturated joists:** Tix Joist paper \$6.50 per 324-sq.-ft. roll, Torex Inc.

### WHAT'S A TREE WORTH?

pp. 51-52



For further information: **Tree-care Information Service:** customer box 5, 200-311-8146. **Internal Revenue Service:** Web site [www.irs.gov](http://www.irs.gov) gives (in the

publication section, open No. 347, "Nonbusiness Expenses, Casualties and Thefts") "Arboriculture & The Law," \$10, and "Guide for Plant Appraisal," \$70, from the International Society of Arboriculture, 217-335-9411.

### SWAMP FIX

pp. 64-66



For help hiring a landscape architect, ask for a referral from the American Society of Landscape Architects, 616 15th NW, Washington, DC 20001 3236, 202-698-3444, [www.asla.org](http://www.asla.org). For help hiring a landscape contractor, ask for a referral from the Associated Landscape Contractors of America, 158 Eldon St.,

Suite 228, Herndon, VA 20170, 703.736-9666. **One-shankers:** Charles Smith, landscape architect, Chaffinerville, VA, 804.286.5628. **Demolition:** Ramona, DJR Contracting Services Inc., 146 Ross Ave., Hickman, NJ 07931, 201-485-4267.

### ROD PATROL

pp. 68-70



**Wood restoration specialist:** John Seck, Box 310, Cherry Valley, NY 14830, 607.244.7042. **Painted wood:** John Gifford, 10000 1st, Laurel, MD 20642, 202.462.14812. **Wax:** by N. C., Professional Self-Loading Primer, Flex-Tec HV plasticizers: wood repair compound, dual piston heavy-duty dispensing gun with 12-in. hose.

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## DIRECTORY

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### WHACK ATTACK pp. 72-74



p. 74: 1. Bow saw, 9-21-51-82; 2. In blade, 513-35; Sawdust Saw and Tool Company, Henderson Division, Box 2036, Seaside, Pennsylvania 15138; 800-632-7257; [www.sawdust.com](http://www.sawdust.com)

2. The Craftsman Power-N-Cut Tool Power 15393, 349-95; Saw Power and Hand Tools, 2740 W. 79th Street, Chicago, Illinois 60632; 800-377-7414; [www.saw.com](http://www.saw.com)

3. Heavy-duty chains: 41-451-80, 535-95; Japan Woodworker, 1731 Clement Avenue, Alameda, California 94501; 800-337-7820

4. Framing shears: Price 8, 544-95; Pyster Inc., Box 3107, Kirkland, Washington 98033; 425-827-7070; fax 425-825-0061

5. Folding saw, 390-142; Pysen, Inc., 527-78; Sawdust, 800-632-7257; Web site: [www.sawdust.com](http://www.sawdust.com)

6. Super Lopper 62-3157, 533-49; Shurtown Series, Tokyo Tools Incorporated, 337A Figueroa Street, Wilmington, California 90744; 800-581-7334

Further reading: *Pruning*, by Robert Keenik, part of Smith and Markov's *Hands On Gardening* series books, Workman Publishing, 1997, \$12.95, in paperback. *The Garden Explorer (Academic Scientist)*, by Max Amato with Illustrations, Henry Holt and Company, 1993, \$12.95, in paperback

7. *"Tree Pruning Guidelines"* pamphlet, 45 plus \$3 shipping and handling charge (from International Society of Arboriculture), Box CG, Society, Tucson 81874; 217-353-9811, fax 217-353-8516

One thanks to: Dennis Ryan, professor of forestry and arboriculture, Hildreth Hall, University of Massachusetts, Amherst, fax 413-549-

4311. Dr. Alex Skibo, Skibo & Thors Associates, Box 759, Durham, New Hampshire 03824; 603-863-7439

### SCREEN SAVERS pp. 77-78



Screen saver painted: Maxima Craftsman style, refinished, 5866; Screen Saver, Box 3623, Quincy, California 91771; 916-283-4364

Victorian Glass in glass, 5353, the Glassblow Man, 327 S Industrial Drive, Placerville, California 95667, 530-632-8538; Adobe 40302 in woodwork, 5280, Mac River Woodworks, Box 1067, Blue Lake, California 95523, 708-446-6383

Craftsman 317 (Larch special) in Douglas fir, 5325, Great Northwest Screen & Screen Door Company, 13733 100th Avenue NE, Kirkland, Washington 98034; 800-699-3667; Kwik-Kwik 501302 in mahogany, 5381, the Wood Factory, 111 Railroad Street, Norwalk, Texas 77648; 409-825-7233

Cape Cod 284 (Larch) in mahogany, 5435, Touchstone Woodworks, Box 112, Dept. 7014, Rossini, Ohio 44268; 330-297-1313

Shaker: Carver in mahogany, New England Screen Door Company, Box 128, Inland, Mass 04316; 267-563-1588

Ranch the Wood Factory, 111 Railroad Street, Norwalk, Texas 77648; 409-825-7233; Walnut 126 (Wilding) in Douglas fir, Great Northwest Screen & Screen Door Co., 2395, Classic 3602 P in mahogany, Capco Woodworking Inc., 1231 Perma Avenue, San Pedro, California 90731, 310-348-4142

Further reading: 3660 in pine, 5120, Capco Woodworking Inc. Monterey 103 (Old Lace) in mahogany, 5414, Touchstone Woodworks, Box 112, Dept. 7014, Rossini, Ohio 44268; 330-297-1313

### WOODWORKER pp. 82-83



To order literature from Sam Malone: 909-987-2003. Sam or Paula will probably answer the phone. Further reading: *Acacia* (acacia), Sam Malone Woodworker 1963, 350, Kodomo International, 108-451-7386

*Malone home, Hand and Honey: The History of American Craftsmen*, by Tamm Bergman, 1994, 530, Inland Press: *Craftsmen*, by Sam Malone Woodworker Profile, Tamm Press, 519-95 plus \$3 shipping, Tamm Press, Box 3107, Norwalk, CT 06420, 800-622-5280

One thanks to: Steven Malone, Larry White, Mike Johnson, Dave White

### THE RIGHT ROOF pp. 84-101



Shake: Vermont state weathering shingles, Greenstone Shingles 812-287-4333; Slate substitute: Plaster—Ecoflex Chaco, gray, American Sheet Extrusion Corp., 806-776-8060; Clay tile—slate gray, Caladon, 800-258-7528; Fiber concrete—dark gray

Hardwood Fiber-Concrete Roofing, James Hardie Building Products, 800-942-7343; Vermont roof: Vermont Slate, English Slate, Darnell Inc., 800-233-3125

Wood: Cedar—Materials available in lumberyards and building supply centers, for insurance, contact Cedar Shake and Shingle Bureau, 425-815-1325



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Laboratory, Richard Field Station, 310-213-4361; John Stahl, Advanced Repair Technology, Barry Goodell, Ph.D., Forest Products Laboratory, University of Maine, 207-583-2888. Further reading: *The publications "Other Uses—Suggestions for Household Repairs," "Spicywoods" and "Wooden Box Construction & Repair,"*

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## DIRECTORY

Crown—Nature Control, deer, Lonsdale Pacific, 800-579-8401. Plaster—Perfect Choice, rustic brown, American Street Extension Corp., 800-776-8063. Metal—Rustic Shingles, perkins green, Classic Products Inc., 800-543-1938. Metal—Copper asphalts—Tatara Copper Shingles, Sphair, Millersburg Center, 800-922-8980. Standing seam—Tollender Inc., 800-624-6906. Vertical seam—ocean blue, Metal Sides Manufacturing Corp., 812-244-0935. Lead—American Eagle Roofing, 205-843-4242. Copper—Accord Shingles, Zappone Manufacturing, 800-283-2677. Tile—Clay Kila Flash Soft Sells, Delta Clay Tile Corp., 909-674-1278. Tile substation Cement—Clay Flash 130, Doodle, 412-789-7125. Metal & more—California Classic Stone-Cement Steel, Pacific Blue, American Roofing Industries, 888-844-7665. Metal—Tehron, ceramic red, AGAS International, 610-385-8445. Asphalt—Standard asphalt—Tough Glass Fiberglass Shingles, 800-284-5367. Limestone—Emberline Class A Fiberglass Shingles, GAF Materials Corp., 800-794-3413. Digital Imaging—Randy Levens, Thomson Group, 13-19 Southgate Street, Suite 2A, Boston, MA 02115. Insp. 0 revisions to spec. For more information: National Roofing Contractors Association, 847-299-1079. The Gray Roof Bible, by Joseph Jenkins, Charles Green Publishing, 820-638-6099. Cha Bunko by Joseph Jenkins, Bess Simons, Ananda Colman, Dale Mulligan, Bruce Whitworth, Shanon Park, Greaton Wobich.

### A KITCHEN WILL DO IT pp. 102-107



All appliances: Jura-Air, 413 West Fourth St., North, Nevada, 11-2228, 800-536-6247. Cooktop, Experiences Collection Triple Gas, CCG3263, \$999. Double oven, 27 inch Pro Style Double Electric, WBC27430; \$1,599. Refrigerators, 19-6 cubic-foot designs line, BUC21897,

\$1,699. Dishwasher, Ultra Quiet Series Pro-Style, DW6100/Q8, \$595. Microwave, M1764, \$327. Soapstone countertop: Thery is by-4-in. slab, 1 1/2 in. thick, \$90.35 per square foot, Vermont Soapstone Co., Fairleeville, VT, 802-263-5488. Butcher block countertop: Twenty-seven and a half in. by 75 in., \$446, Counterworks, Franklin, MA, 508-525-8610. Cabinets: Maple with Maple tops (stained with Indigo stain), birch plywood carcass, Hatteras door style, Kraft Maid Cabinetry, Middlefield, OH, 800-315-2202. Flooring: 7 1/2 inch planks, Rivers Pine Knots USA771, \$8 per sq. ft., Harma-Turkin, Johnson City, TN, 400-842-7856. Wine cooler: Model 15 WC, Mock iron, 32 bottle capacity, \$477, U-Line Corp., 8900 North 25th St., Fox 33220, Milwaukee, WI 53223, 414-334-0300. Sink and faucet: Bath Iron Kitchen Co., Kohler, WI 53044, 800-456-4557. Sink, \$241, model K-68754, White Oaks, 9438 model K-142, antique in-chrome with spray Lighting system: Radio RA radio frequency lighting control system, starting at \$2,000, Lutron, 7200 Sutter Rd., Cooperburg, PA 18836, 610-281-3808. Designer: Phil Monaghan of Kitchen Interiors, 255 Worcester Rd., North, MA 01760, 908-833-4134, fax 908-630-1113.

Jura-Air, 800-536-6247

Cabinetry: Kraft Maid, 800-571-1990.

Dishwasher: Jura-Air Pro-Style, 800-536-6247

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## DIRECTORY



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pp. 105-115



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ARSENIC AND OLD WOOD  
RE. 118-125



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- **ACQ Chemical Specialties Inc.**, 290 East 11th Woodlawn Rd., Suite 200, Charleston, NC 28117, 706.432.8661. A lot of the products are available.
- **Copper-nite, Haskins Corp.**, 1855 Lake Park Dr., Suite 212, Smyrna, GA 30089, 770.881.6408. Copper-nite Granular Wood Preserving Ltd., 998 Elliott St., Buffalo, NY 14202-2399, 716.833.8958. Other suppliers of wood treated with ACQ: **Pal Tech Inc.**, Northeast Georgia Co., Box 43, Chappie, GA, 706.547.2291, 706.236-3663, Web site: [www.croaton.com](http://www.croaton.com).
- **Douglas Materials, 38825 Tenthred Lane** of New England, Deerfield Rock, North Kingston, RI 02852, 401.281.3208. Other supplier of wood treated with copper-nite: **Timberline Wood Treatment Co. Inc.**, Keweenaw, CA 91347, 709.659.4161. Kadach Preserved Wood-HK Bismarck, Inc. 911E, Memphis, TN 38108-000, 356.3323.

**Soil testing:** After a phone call to the company, mail samples and \$50 for a generic reading (plus \$10 extra each for copper and chromium readings, if desired) to Tony Bogden, Ecology and Environment Incorporated, 4483 Walden Avenue, Lancaster, New York 14086, 716-425-2080.

**Further information:** American Wood Products Association, Box 5430, Green Bay, TX 78449; 817-326-0306  
John Gray, president for pressure treated wood; American Wood Products Institute, 2730 Prosperity Ave., Suite 500, Fairfax, VA 22031  
4312, 703-204-0930, [www.azpi.org](http://www.azpi.org)  
Gray promotes the industry  
Publications exploring safety and issues of pressure treated wood include: Wood Preservation in the '90s and Beyond, 7308, \$45 for members, \$55 for nonmembers, Environmental  
Contributions in the Manufacture, Use and Disposal of Pressure-Treated Wood, 7123, \$37 for members, \$45 for nonmembers, [www.azpi.org](http://www.azpi.org)  
The National Use of Pressure-Treated Wood, 7239, \$24.95, not available from the Forest Products Society, 1881 Marshall Court, Madison, WI 53703 2249, 608-253-1361. See handouts chapter for order



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**TO BUILD A FENCE**  
pp. 126-127



**Lyndon** *Lyndon* Marc Schorn of  
Evan Wayne Associates, 75 Glen Rd.,  
Suite 305, Sandy Hook, CT 06482,  
203 426-6637. **Golden Age** Model  
DG-18, \$74.71, Seymour  
Manufacturing Company, 390  
Broadway, Seymour, IN 46784, 812  
(312) 2800.

**Further reading:** *Wonder Women*, by  
Galea Natch, 231 pp., \$29.95, Tarragon  
Press, c/o S. Mann St. Box 5356,  
Newsworld, CT 06470, 800 283 7232.  
*Frog Shins in the Garden*, by Nancie  
Wydra, 1997, 226 pp., \$14.95,  
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### CHURCH ESTATE pg. 132-138



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415-381-8321. Salvage yards: Urban  
Dry, 1133 4th St., Berkeley, CA 94703,  
510-339-4433. Omega Salvage, 2497  
San Pablo Ave., Berkeley, CA 94702,  
510-843-7363. Cabinet Salvage: Kono  
Industries, 1883 Via Pinedale,  
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### POSTER: DRIVEWAY PAVERS pg. 137-138



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A century later, Central City fell into decline, and the house was divided into eight rental units. The last tenant moved out six months ago, and thieves in quest of antique architectural details ransacked the building. The owners recovered much of the hoort—including masonry, door hardware and stairway balusters and railings—from a local salvage yard.

The cost of renovating the house could run as high as \$150,000. For the recent conversion of a nearby factory department store into artists' studios demonstrates that the neighborhood is a good investment. Because Canal City is on the National Register of Historic Districts, the buyers will be eligible for a 20 percent tax break on construction costs even if they turn the building resident into an income-producing building and landlord.

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stripped of its original wrought-iron railings, which were taken by thieves who ought to be arrested for details from Arthur's House, 1136 St James's Road like an unbridled Minsk Gnat ruler. Some details, such as the wrought-iron fence, further left, proved more difficult to steal. The recovery saved others, including two small, extreme Russian-made, bottom right, from a local antique yard.



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